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INTRATRACHEAL INSUFFLATION *

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The essentials of the method of intratracheal insufflation consist, (1) in the introduction deep into the trachea of a flexible elastic tube, the diameter of which has to be much smaller than the lumen of the trachea, and, (2) the driving through this tube of a nearly continuous stream of air which returns through the space between the tube and the walls of the trachea. The distinguishing features of this method consist in the following two new principles: 1. By bringing the pure air directly to the larger bronchi, and by driving out the vitiated air from these bronchi through the force of the returning air stream, that part of the "death space" is eliminated which is represented by the mouth, pharynx, larynx and trachea. The chief aim of the complicated nervous and muscular mechanisms of respiration is to establish an efficient ventilation, capable of overcoming the obstacles offered by the mentioned "death space." A well-arranged intratracheal insufflation is fully capable of relieving and substituting the normal respiratory mechanism. 2. The practically continuous recurrent air stream prevents the invasion of indifferent or infectious foreign matter from the pharynx into the trachea.

The usefulness of the method is at least threefold. 1. It is capable, as stated before, of keeping up an efficient respiration in cases in which the normal mechanism of the external respiration fails. 2. It overcomes efficiently and conveniently the difficulties presented by double pneumothorax. 3. It offers a safe and reliable method for anesthesia, especially for the administration of ether.

In the course of the last two years, since the first publication by Dr. Auer and myself on "Continuous Respiration Without Respiratory Movements,"[1] several hundred experiments were carried out in our department at the Rockefeller Institute on the various phases and relations of the method of intratracheal insufflation. In the very short time at my disposal, I shall confine myself to brief reports and considerations of the more practical results of several series of investigations.

THE INNOCUOUSNESS OF THE METHOD

We shall deal first with the question whether any injury can be done to the respiratory organs by the use of intratracheal insufflation, as was urged, on purely theoretical grounds, by critics of this method. We devoted a good deal of attention to this point. The following results give, I believe, an unmistakable answer.

1. The method was practiced in a very large number of experiments, in most of them the insufflation lasted for many hours, and in some as long as twelve hours. In not a single case did bronchitis or pneumonia develop which had to be ascribed to the preceding insufflation. Pulmonary affections are not a rare occurrence in dogs, especially in stray animals. Nevertheless the dogs which were subject to insufflation did not show a greater disposition toward respiratory affections than animals which were not exposed to such treatment.

2. In two systematic series of experiments carried out by Dr. Githens and myself the question of aspiration was studied by means of severe tests. In one series after filling up the stomach with acid solutions, vomiting was produced by hypodermic injections of apomorphin. The vomited material was left in the mouth and pharynx for a long period during the insufflation. In another series mouth and pharynx were filled with a suspension of powdered charcoal. The animals were kept during this period under deep or light ether anesthesia. In not a single case in which insufflation was practiced was vomited matter or some of the charcoal found in the trachea or bronchi. On the other hand, when a tube was in the trachea, but no air was driven through the intratracheal tube, and the condition, therefore, was, to a degree, similar to Kuhn's method of peroral intubation, the contents of the mouth and pharynx often came out through the free end of the tube. Furthermore, when deep anesthesia was induced, in these latter experiments, especially in the experiments with charcoal, the animals died in a few minutes, and at the autopsy trachea and bronchi were found to be loaded with charcoal. When the animal was only lightly anesthetized, so that the deglutition reflex remained active, rapid swallowing seemed to clear away most of the foreign material present in the pharynx. These parallel experiments demonstrate with great distinctness the efficiency and importance of the recurrent air-stream in the insufflation method.

3. In an investigation carried out by Dr. Lamar and myself we succeeded, in a large number of experiments on dogs, to produce lobar pneumonia in every instance, with a mortality of over 15 per cent. Employing now the same method, Dr. Githens and I produced lobar pneumonia in a series of nine dogs and subsequently practiced insufflation on them for one hour every day for eight to ten days. Not a single animal of this series succumbed to pneumonia. These latter experiments certainly show that insufflation brings no greater danger to the respiratory organs even when the animals are already afflicted with such a serious but not intensely fatal disease as lobar pneumonia.

All our various extensive experiences, therefore, demonstrate conclusively that the method of intratracheal insufflation, far from being a menace to the respiratory organs, is rather capable of protecting them against injurious invasions of foreign matter.

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* From Department of Physiology and Pharmacology of the Rockefeller Institute for Medical Research.

[1] Jour. Exper. Med., xi, 622, 1909.

INSUFFLATION, DIFFERENTIAL PRESSURE AND THE FACTORS OF SAFETY

Significant is the following consideration of intratracheal insufflation as a method to overcome the dangers of pneumothorax. Some surgical writers see in the intratracheal insufflation nothing more than a modification of the Brauer, or the overpressure, method; neither do they anticipate that it is capable of accomplishing more than that method. This view is based on an unfamiliarity with the essential principles of either of the methods and is entirely erroneous. The methods of overpressure as well as that of underpressure aim only at keeping the lungs distended, but do not provide for any ventilation of the lungs. This is left, as in the normal animals, entirely to the activity of the respiratory muscles. It is fundamentally different, however, with the method of intratracheal insufflation; if it is properly adjusted, it is able to carry on the process of ventilation with complete efficiency, without any aid of the respiratory mechanism. This difference is a vital point, which, however, is imperfectly understood by the workers in this line. Our own attention was directed to the importance of this difference by some striking results obtained by Dr. Auer and myself in a series of experiments in which the Brauer method and the method of intratracheal insufflation were compared. In these experiments after both pleural cavities were kept widely open for one hour or an hour and a half, both lower lobes of the lungs were removed from their approximation to the diaphragm and the posterior walls. *When using the Brauer method the animals died in a short time, often in two or three minutes.* Furthermore, the replacing of the lobes and even the starting of proper artificial respiration could not, in many, if not in most cases, restore the activity of the heart. In the insufflation method, on the other hand, even a fairly complete lifting out of the lungs from the thoracic cavity never interferes with the activity of the heart. A further difference in the behavior of the heart could be observed, when the pressure keeping up the inflation or the insufflation was discontinued and the lungs permitted to collapse. *In the Brauer method, within a few seconds after the discontinuation, the heart becomes slow and is liable to stop in less than half a minute;* while under the insufflation method a minute and a half and even two minutes may pass before the effects of asphyxia will show themselves. The same difference is manifest in the readiness with which the heart recuperates after the pressure is restored again. What is the cause of this difference?

To my mind the difference consists in the unquestionable fact that *in the Brauer method the respiratory process is frequently deprived of nearly all of its factors of safety,* while in the method of the intratracheal insufflation none is missing. The question of the preservation of the factors of safety is such an important requirement in many fields of surgical activity that I shall try to explain its meaning a little more fully. A few years ago, in a Harvey lecture, I showed that the various mechanisms of the animal body are, like human-made machines, well provided with factors of safety. When a bridge, a building or a machine is constructed, it is built, in the first place, to be able to resist the expected maximum of stress or to accomplish the expected maximum of work. Beside this provision still further powers of resistance are added to the structure, or dynamic efficiency is added to the machine, in order to meet unexpected exigencies. These additions are termed *factors of safety;* they may consist of fourfold units or of tenfold, twentyfold, etc., according to the object for which the structures or the machine are built.

In the animal body we find that the kidneys have functional substance more than twice, the liver four times, the thyroids six times, the pancreas at least ten times more than is absolutely necessary. To come to the point under discussion, the normal respiratory mechanism provides for an exchange of gases to a much greater extent than is absolutely indispensable for the maintenance of life—it is provided, as we say, with a large number of factors of safety. How large they are, we may get an idea when we analyze the conditions prevailing in the Sauerbruch or in the Brauer methods. As stated before, in both methods the actual respiration is accomplished by the contraction of the respiratory muscles. By the inspiratory distention of the thoracic cavity, and the decrease of pressure therein, air is made to rush into it, to make up the deficit. In normal animals the air can rush in only through the trachea; in animals with open thorax, however, air may rush in also through the opening in the wall of the thorax. The same is true also of the expiration, the movements of the air being only in the reverse direction. Now since the opening in the thoracic wall during an intrathoracic operation is by far much larger than the lumen of the trachea or that of the glottis, it is evident that only a very small fraction of the air enters and leaves the tracheal path during inspiration and expiration. That fraction of a respiration is surely too small to maintain life even for a short time. However, we may assume that even under these circumstances air rushes through the trachea into the lowest and most posterior part of the lungs, by the virtue of their close approximation to the respiratory muscles, more readily than through the artificial opening in the thoracic walls. These parts of the lungs, when in normal position, contribute therefore essentially to the maintenance of life under these precarious circumstances; hence the fatal effects of the separation of the posterior lobes from their natural approximation. But, whatever the mechanism may be, it is evident that the total sum of the various contributions to the exchange of air in the methods of differential pressures can be only a small fraction of the exchange which takes place in normal conditions. Nevertheless this fraction is frequently sufficient to keep up the life of the animal for a long time, to keep it up during an operation which may last for several hours.

This shows that the exchange of gases in the normal external respiration is many times more extensive than is necessary for the immediate maintenance of life; in other words, the normal function of the external respiration is provided with many factors of safety. But it shows also that under differential pressure the external respiration is frequently deprived of most of its factors of safety. What is said of the external respiration applies also to the internal respiration, and we may therefore say that in operations under the Sauerbruch or the Brauer methods the nerve cells of the medulla and the muscle fibers of the heart continue to functionate under a minimum exchange of gases. But we must remember that these structures are very sensitive tissues. Normally their activity is protected against any mishap by a great many factors of safety, by an abundance of gaseous exchange. When they persist on a minimum, they are continually on a danger line; the slightest mishap may affect the minimum, and the life of these sensitive structures is extinguished, and what is worse a subsequent abundant supply of internal respiration frequently fails to resuscitate them—artificial respiration fails to resuscitate the animal which was exposed for a long time to the dangers of a minimum respiration.

And here is the general significance of the preservation of the factors of safety during a surgical procedure. Life may seem to continue satisfactorily without the factors of safety as well as with them. But when persisting only on a minimum, life is continually on the borderline of danger; any small accident may destroy it beyond recall. With an abundance of factors *of safety small incidents leave no impression, and when* a stronger mishap occurs, proper means, early applied, bring recovery—the controlling sensitive tissues are still in a recoverable state. This applies to many surgical conditions. In intrathoracic surgery, under differential pressure, external and internal respiratory processes are deprived of most of their factors of safety, the life of the medulla and of the heart persists throughout the operation on a minimum of the gaseous metabolism. If the operation is terminated without an incident the individual may recover without manifesting any sign that it ever was in danger. If, however, some mishap occurs, be it ever so small, that minimum of internal respiration may become extinguished and life be gone beyond recovery. When this occurs, and it has occurred, surgeons ascribe the fatal result to a vagus effect, a reflex shock and what not else. But the mishap, whatever it may have been, was only the accidental terminal cause; the real cause of the fatal result is to be found in the fact that the life of the patient, under differential pressure, persisted too long on a minimum supply of internal respiration, and medulla and heart lost all their power of resistance. The addition of appliances for artificial respiration to differential chambers will frequently fail to mend the evil; artificial external respiration, and be it ever so efficient, often will not restore the life of the sensitive nerve cells and the heart muscle fibers which, after being exposed for a long time to a mere minimum of internal respiration, lost all their recuperating power.

Summing up in a few words: Under even the best-arranged differential pressure methods, the life of patients with a double pneumothorax persists on a greatly reduced supply of external and internal respiration and is continually exposed to the dangers which may result from it; under properly arranged intratracheal insufflation, however, the patient is supplied with an abundance of external and internal respiration and is at no time in danger from this source.

ANESTHESIA BY INTRATRACHEAL INSUFFLATION

In my first paper[2] on the method of intratracheal insufflation about fifteen months ago my statement with regard to anesthesia read as follows: "On the basis of my observations and experiments it seems to me that the giving of ether by the method of intratracheal insufflation is the safest and the most effective way of administration of this anesthetic." Since making this statement we had considerable experience with the administration of ether by the *insufflation method. We used* and use it daily, and for all kinds of experimental operations; it is the routine method of anesthesia in our laboratory. And I am willing to state now, and even with greater emphasis than before, that it is the ideal method of administration of ether anesthesia. If properly adjusted and supervised the anesthesia may last for many hours, without the occurrence of serious incidents during the anesthesia or of serious consequences subsequent to it. Eight dogs were kept for twelve hours continuously under profound anesthesia; there were no disturbing incidents during the anesthesia and none subsequent to it. Even in these prolonged anesthesias the animal recovered from them in less than half an hour.

In the numerous experiments of Shaklee and of Githens on the treatment of strychnin poisoning by insufflation, the animals were kept continuously under profound anesthesia for many hours, sometimes as long *as eight. The anesthesia by the insufflation method is* far superior in many respects to that of the usual method of administration of ether. It is much safer, the anesthesia is much more readily controlled; the animal gets under it more quickly when the ether is turned on and gets more quickly out of the anesthesia when the ether is turned off; it requires only scant supervision, and not much ether is used up. The method offers also the great safety that efficient artificial respiration may be immediately instituted at the first appearance of dangerous or even only of doubtful symptoms, and this merely by turning of a screw clamp or a stopcock. The effects of anesthesia disappear very rapidly and especially so, when after interruption of the anesthesia pure air is insufflated for a few minutes before the removal of the tube.

Of the various studies which we carried on regarding the relation of the insufflation anesthesia to blood-pressure, respiration, etc., I shall mention here very briefly only a few facts. In the first place I wish to make a correction. In my first paper I stated that I did not succeed in killing dogs with ether, when administered by the insufflation method. In recent studies of Dr. Githens and myself on the influence of the anesthesia on blood-pressure and respiration, we found that under certain conditions ether might become fatal even when administered by insufflation. These studies brought to light instructive results. When an animal is brought under the influence of anesthesia under conditions which are just sufficient to make the anesthesia complete, for instance under an insufflation pressure of 30 or 40 mm. of mercury and with an air stream going three-fourths through a bottle containing ether and one-fourth as pure air, the animal will remain in the same excellent state of blood-pressure, respiration, etc., as long as the external conditions remain the same. However, if the conditions change, for instance, if the entire air stream passes through the ether bottle, we may see now the blood-pressure starting to go down, its various undulations gradually disappearing, and the respiration becoming more and more shallow and slow, until it completely ceases. Even then the heart continues to beat regularly and effectively, although the pulse pressure is usually somewhat decreased. If this state is permitted to continue for an hour or longer, the animal cannot be saved any more. However, if twenty or thirty minutes after the spontaneous respiration ceased the former conditions are restored, or still better, the insufflation of entirely pure air is instituted, the blood-pressure begins to rise and the respiration begins to make its appearance, until in a comparatively short time normal and safe conditions prevail again. In these experiments a strong overdose of ether paralyzes first the functions of the medulla and much later that of the heart. Of course these were severe experimental tests and cannot and should not occur in human surgery. Here it should be the rule to reduce the ether as soon as the respiration becomes shallow and slow.

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[2] Meltzer, S. J.: Med. Record, lxxvii, 477, 1910.

Of the further remarks which I wish to make and which of necessity will have to be extremely brief and aphoristic I shall mention in the first place the important fact that if the intratracheal tube is only of moderate size, the insufflation pressure can be increased considerably without causing any injury whatsoever. Under these conditions *an increase of 30 mm. of mercury in the external pressure may mean an increase of only 1 millimeter within the bronchi.* The increase of pressure will often prove beneficial when the patient shows some cyanosis; the tube might in this case be too small. The increase of pressure might prove useful also in facilitating the anesthesia in very resistant individuals. Such an individual resistance to ether occurs also among animals, but not with that frequency and to that degree as it may be met with in human beings with their goodly number of neurotics and alcoholics. The higher external pressure is the means of driving into the bronchi a larger quantity of ether (and air) in a unit of time. A similar result may be obtained by frequently exerting a slight pressure on the larynx for a second or two; this brings a greater distention of the lungs with all the advantages which are to be derived from it. I may mention here also the facts that the anesthesia is more rapid and more effective, the larger the bottle is which contains the ether and the more ether it contains.

Our studies of chloroform are, so far, not so extensive as those of ether, but we know already a few things about it which ought to be mentioned here. Prolonged anesthesia by chloroform led sometimes to hyperemia and even to inflammation of the lungs. Furthermore, chloroform anesthesia requires careful supervision; it affects readily the functions of the medulla. However, with proper supervision chloroform may be used for shorter operations with perfect confidence and it may be readily employed especially in individuals resistant to ether, at least for the purpose of the induction of the anesthesia.

In using insufflation in human surgery, whether for the purpose of anesthesia or for intrathoracic operations, it ought to be the rule that the continuous air stream should be interrupted five or six times per minute for one or two seconds at a time. From extensive experience we know that these short interruptions, which do not admit any aspiration, constitute a very valuable factor, a factor of safety, in making insufflation safe and efficient. The interruptions help also in recognizing the degree of the distention of the thorax. If the distention is too strong, it is due to too high an external insufflation pressure, which is easily remedied. or the tube is too large. In the latter case, no time should be lost in exchanging the tube for a smaller one. Too little distention is due to the comparative smallness of the tube. In this case, it is not always necessary to exchange the tube for a larger one. Increase in insufflation pressure, which should be done not too abruptly, will frequently remedy the deficiency. In addition, a momentary pressure on the trachea, frequently exercised, does excellent service. The pressure, however, is best applied to the larynx where a slight pressure causes a sufficient distention of the lungs.

The tube must possess a certain degree of rigidity and elasticity. However, care must be exercised in the introduction of the tube. By the use of undue force an abrasion of the mucous membranes of the larynx or trachea might occur, which could lead to a serious emphysema. For human beings the best method of introduction is apparently the one which is now being used by Dr. Elsberg, that is under the guidance of a Jackson direct laryngoscope. I shall not dwell on the methods for providing a continuous air stream and for regulating the anesthesia; they are simple mechanical problems which will be solved variously according to the bent of mind of the various surgeons. The simplest method is the one which I suggested some time ago and which consists of foot bellows for the generation of pressure and of a Wolff's bottle, branching rubber tubings and screw clamps for regulating the anesthesia. In our laboratory we employ a respiration apparatus, which provides pressure for insufflation for several animals at the same time. For human surgery, Elsberg's compact apparatus is surely the best; it was developed with ingenuity and foresight and it works with simplicity and perfection.

I shall add yet the remark that under exceptional circumstances air enters through the esophagus into the stomach. Under these circumstances a stomach-tube, which is easily introduced and which does not interfere in the slightest with the insufflation, remedies promptly this insignificant complication.

Finally I may be permitted to quote here from reports on the use of *insufflation anesthesia in human beings* kindly furnished me by Dr. Charles A. Elsberg of the Mount Sinai Hospital of New York and Dr. Charles H. Peck of the Roosevelt Hospital of New York. Dr. Elsberg, who was the first man to introduce intratracheal insufflation into human surgery and who worked on that problem with ingenuity, scientific enthusiasm and perseverance, used this method in over 125 cases; of these, ten were thoracotomies. There were no pulmonary, bronchial or laryngeal complications. Postoperative vomiting occurred only in four cases. In three cases there was some abdominal rigidity. "All the patients awoke very quickly from the anesthesia and were remarkably comfortable afterward." Dr. Peck, who is surely an unbiassed observer, began to employ insufflation anesthesia, by means of Elsberg's apparatus, about April 21, and reports now (June 7) on thirty-two cases. In twenty-eight cases, he writes, "the anesthesia was ideal; the color was perfect throughout and the respiratory movements quiet and regular." "In four alcoholic males there was some difficulty in keeping the patient quiet and relaxed, not enough, however, to seriously interfere with the operation in any case." "The recovery from the anesthesia has been very quick and quiet with less stupor and discomfort than usual." "None of the cases had postoperative hoarseness, bronchitis or pneumonia or any other postoperative complication which could be attributed to the anesthesia. I have been much struck by the absence of ether shock or depression, especially in the old and the feeble patients." The oldest patient was 74 and the youngest 10 years old. Some of the operations lasted three hours: One patient with perforated duodenal ulcer with peritonitis "vomited profusely during the operation without interfering with the anesthesia in the least or aspirating any of the vomitus." "Twenty-three of the patients had no postoperative vomiting, four vomited once very little, three vomited a few times and two had more prolonged and persistent vomiting, one being a three-hour operation on the glands of the neck and one a case of intestinal obstruction with profuse vomiting, both before and after the operation." Both Elsberg and Peck say that in operations on mouth, pharynx, superior maxilla, etc., "the method was ideal in preventing aspiration of blood and mucus, and securing perfect quiet anesthesia without difficulty." Both point out the value in many cases of having the anesthetist out of the operator's way and "that it is much easier to guard against contamination of the operative field." Dr. Peck sums up by saying: "I have seen no ill effects of any kind from the method, and while my experience is still limited, I am convinced that it has many advantages in a variety of conditions, in addition to its special use for thoracic operations."

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TREATMENT OF LOCALIZED APPENDICULAR ABSCESS *

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In a paper[1] read before this Section at the St. Louis meeting last year, Dr. Archibald Maclaren very kindly referred to an article of mine dealing with this subject. Since that time many inquiries have been received concerning the matter, and I have decided to bring the subject before the Section at this time, giving, as briefly as possible, the results of increased experience with the method.

No attempt will be made in this paper to consider the treatment of appendicitis in detail nor will any effort be directed toward the spell-binding oratory so frequently indulged in before this Section, in an effort to fix for all time and all persons, the exact moment most favorable for operation. It is my intention to confine these few remarks to consideration of the question, Should or should we not remove the appendix in practically every case of localized appendicular abscess?

In perusing the literature on this question, or in attendance at the various surgical clinics throughout the country, we find, as probably the most frequently employed plan, the removal of the appendix when it presents itself freely within the confines of the abscess, while in those cases in which it is adherent and buried by the intestinal coils, the operation is limited to simple incision and drainage, leaving the appendix to be removed at some future time. The reason given for the latter course is usually that it is unsafe to separate the adhesions forming the boundary of the abscess, thereby liberating, during the search for the appendix, pus and septic material into the uncontaminated areas of the peritoneum.

This was the course usually employed by me until *some three years ago. During the past three years* I have operated on 283 cases of appendicular abscess, sharply localized. This list does not include any case in which at operation the general peritoneal cavity was found to be infected, nor those cases of gangrene of the appendix without the formation of a distinct peri-appendicular abscess.

In this series of cases the appendix was removed in every instance at the first operation whether it could be easily detected within the abscess cavity or whether deeply buried by adhesions. In these 283 cases there occurred three deaths. One patient, a little girl, aged 4, died thirty-six hours after operation; another, a man aged 49, died sixteen days after operation from cardiac thrombosis; and the third, a boy aged 17, died four days following operation from septicemia. There were no deaths from peritonitis.

The ages of the patients included in this series ranged from 10 months to 84 years. The latter case, an old man referred by Dr. Oliver Fisher of Sloan, Iowa, had a large abscess due to a perforated appendix, and is the oldest patient suffering with appendicitis seen by me in an experience of over 3,000 cases operated on.

These results are infinitely better than those I secured under the former plan of treatment in which the appendix was allowed to remain undisturbed in a large proportion of cases.

Since the adoption of the Fowler position and drainage of the peritoneal cavity by means of a large rubber tube inserted to the bottom of the recto-vesical pouch, or cul-de-sac, supplemented by saline proctoclysis, peritonitis has been shorn of its terrors.

It was noticed in those cases of diffuse septic peritonitis due to perforation of the appendix which were treated in this manner, that convalescence was almost uniformly rapid and smooth and without distressing sequelæ. In fact, it soon became a matter of common observation that those patients whose appendices had been removed and in whom the above method of drainage was employed, recovered more rapidly and more frequently than those with localized abscess, which had been merely opened and drained. If, then, we are no longer afraid of diffuse septic peritonitis, why should we hesitate to remove the appendix in all cases? Such considerations later led to the gradual adoption of the plan of systematic removal of the appendix in abscess cases.

As experience in the treatment of these cases increased and the appendix was removed with increasing frequency at the first operation, it was noticed that during search for and removal of the appendix, small pus collections were frequently encountered here and there among the adherent coils of intestine and omentum whose presence had not been suspected, and which would have been overlooked had not the adhesions been separated. Drainage of the larger pus collection would not have reached these smaller hidden septic foci.

It was also noted that in many cases of peri-appendicular abscess which were tightly walled off, even at times high in the pelvis, separation of the adhesions would reveal a large amount of pus or purulent serum in the recto-vesical pouch or cul-de-sac, which would most certainly have been otherwise overlooked. Thus were exposed the reasons for many a secondary operation for so-called secondary abscess.

The free separation of adhesions during the removal of the appendix tends greatly to lessen the danger of postoperative obstruction, which does not occur with nearly the same frequency in cases so treated as in those cases which are merely subjected to incision and drainage of the abscess. The separation of adhesions and the establishing of free communication between the region of the cecum and appendix, formerly occupied by the abscess cavity, and the lowermost pelvic peritoneal fold (the recto-vesical pouch in males, the cul-de-sac in females), permits the best possible drainage to be instituted by the placing of a large split rubber tube carrying a wick of iodoform gauze in the lowermost peritoneal pouch and permitting it to emerge through the lower angle of the wound. This does away with the necessity of multiple drains either of tube or gauze, and thereby lessens to no small extent the tendency to the formation of postoperative adhesions. Drainage instituted as above described removes the necessity for placing either tube or gauze in contact with the cecum at a point where its vitality has been impaired by the infectious process, and thus is lessened the occurrence of fecal fistulæ, the development of which is frequently encouraged by the ill-advised placing of such drains in contact with an already weakened and diseased cecal wall, with resulting pressure necrosis.

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* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

[1] The Journal A. M. A., June 25, 1910.

With the patient in Fowler's position, a large rubber tube will drain the lower peritoneal pouch much more rapidly and completely than the region immediately adjacent to the cecum can be so drained, as a tube in the latter position will be more rapidly shut in by limiting adhesions than the former; and through the influence of gravity we secure at once the collection of all septic fluids at the most dependent portion of the peritoneal sac, whence they are rapidly discharged to the surface through the tube before its capacity for drainage has been destroyed by surrounding adhesions.

Because of the rapid free drainage so secured, the tendency to postoperative sepsis manifested by hepatic abscess, pylephlebitis, subphrenic abscess, empyema, etc., is much less marked than in those cases where a leaking appendix is permitted to remain and hourly add its burden of septic and infectious material to a cavity imperfectly drained, because slowly drained, and drained for much too short a time.

The removal of the appendix at a secondary operation is frequently a very difficult procedure because of the density of the surrounding adhesions, and in the majority of instances it will be found much easier to remove it at the first operation and this should now be done rather than subject the patient to a prolonged and often serious second operation.

In my experience the necessity for a second operation following appendicitis with abscess formation in which the first operation consisted merely of incision and drainage, has been noted to arise with much greater frequency than usually stated in text-books. As nearly as I can estimate it occurs in from 25 to 30 per cent. of cases. This one fact is a strong argument in favor of the removal of the appendix at the primary operation.

A few words as to the technic of the operation: The incision is invariably made through the right rectus muscle, splitting the fibers, and the peritoneal cavity freely opened. A small gauze pack is tucked into the upper angle of the wound and so adjusted as to prevent any extravasation of pus toward the liver or diaphragm. Another small pack is tucked in toward the median line from the upper angle of the wound to the lower pelvis to prevent any extravasation toward the left. The abscess cavity is then freely opened with the fingers unless opened by the peritoneal incision, and the pus rapidly mopped up with gauze sponges. The appendix is then exposed and removed. All adhesions separating the abscess cavity from the lower pelvis are now freely separated and the pus or sero-pus, which is usually found in the lower peritoneal pouch, is rapidly mopped up with sponges. A large split rubber tube, from one-half inch to one inch in diameter and carrying a wick of iodoform gauze, is inserted through the lower angle of the wound to the bottom of the recto-vesical pouch or cul-de-sac, the protecting gauze removed and the wound closed down to the tube with interrupted, through and through silkworm sutures. Attention is called to the large size of the tube, as I believe the first hours of drainage are those which count. I had these tubes made to order in 1902, and have employed them ever since for peritoneal drainage.

The patient is then placed in bed, the head of which is elevated at least thirty inches from the floor. The patient is turned sharply on his right side and furnished with a special nurse who is instructed to see that the right-side posture is maintained for at least twenty-four hours. Proctoclysis is immediately begun and continued as long as the individual case requires. Water is allowed at once, but in small quantities. Not more than one ounce at a time and frequently repeated. Morphin is given and repeated whenever necessary to control pain. No nourishment is given for forty-eight hours and then sparingly.

The two hundred and eighty-three cases mentioned above represent but a small portion of peri-appendicular abscesses which have been so treated, as I have been working up to this point for years by gradually increasing the indications for the removal of the appendix in these cases, and they are reported merely because they represent an unbroken series of cases which have been so managed. Since 1902, many patients with diffuse septic peritonitis have been treated by the same form of drainage and increasing experience with its value when so employed seemed to justify the belief that peri-appendicular adhesions may be separated not only with impunity, but under proper precautions, even with benefit.

The method is not advocated for the occasional operator, nor is the claim advanced that it should be invariably employed by men of great experience. However, it is urged that it should be much more frequently employed by competent surgeons than is now the custom, and I believe that the instances in which it is contra-indicated should be very rare indeed.

SUBPHRENIC ABSCESS THE RESULT OF ACUTE INFLAMMATION OF THE VERMIFORM APPENDIX *

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It is no doubt true, as Jopson[1] has stated, that subphrenic abscess is an uncommon affection at any time of life. Nevertheless, the constantly increasing number of reported cases must be taken to mean that while the affection is uncommon it is not very rare.

Before the era of abdominal surgery, it was generally believed that subphrenic abscess most often arose from disease of the upper abdominal viscera, and that other sources of origin were rare. More extended experience with the inflammatory affections of the abdomen has demonstrated that appendicitis is one of the most frequent causes of subphrenic abscess; that such an abscess is one of the gravest complications of appendiceal disease, and that it is one of the conditions associated with appendicitis most often overlooked.

The principal points to be noted in a consideration of subphrenic abscess complicating appendicitis are:

I. The frequency and incidence as to age, sex, etc.
II. The mode of infection.
III. The anatomy of subphrenic collections arising from disease in the right iliac fossa.
IV. The symptomatology.
V. The treatment.

I. FREQUENCY

In 3,391 consecutive cases of acute appendicitis at the German Hospital, there occurred thirty cases of subphrenic abscess or 0.8 per cent.

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* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

[1] Jopson: Arch. Pediat., 1904, xxi, No. 2.

In 500 consecutive cases of acute appendicitis in children under 14 years of age at the Mary J. Drexel Home, there was one case of subphrenic abscess, or 0.2 per cent.

In the total number of 3,891 cases of acute appendicitis in adults and children, there were thirty-one cases of subphrenic abscess, or 0.7 per cent.

Sir Frederick Treves[2] in 1,000 cases of acute appendicitis had six instances of subphrenic abscess. Kelly and Hurdon[3] quote 410 consecutive autopsies at the Boston City Hospital. Of these cases there were thirteen of subphrenic abscess, seven of which were appendiceal in origin.

Lance[4] collected the records of 943 cases of subphrenic abscess, and of these 222 were due to acute appendicitis.

Piquand[5] collected 890 cases of subphrenic abscess, and of these 191 were due to appendiceal disease.

From these statistics we may safely draw the following inferences:

1. Subphrenic abscess following appendicitis is more common than formerly was supposed.
2. It occurs in from 0.5 per cent. to 1 per cent. of all cases of acute appendicitis.

The exact ratio of subphrenic abscess due to appendicitis and cases due to other causes in our own experience at the German Hospital, I have been unable to determine, but a fairly thorough examination of the records, leads to the conclusion that appendicitis outranked all other causes combined. It is true that there were far more cases of appendicitis treated than of any other intra-abdominal condition, and the preponderance, I believe, was more marked than in most general hospitals or surgical clinics.

II. MODE OF INFECTION

The mode of infection of the subdiaphragmatic spaces from disease of the appendix has been most carefully studied. Barnard,[6] Lance,[4] and Cosentino[7] have gone into the question most thoroughly; the first from the anatomic side; the second from the clinical; and the third from the clinical and experimental sides. Their classifications and views as to the relative importance of each method of infection vary somewhat, but they agree that the infection may occur:

1. As a part of the general peritonitis—these cases are not to be included in a consideration of true localized subphrenic abscess.
2. By direct extension up the lower peritoneal fossæ.
3. Through the medium of the portal vein (Barnard and Lance). This, in our experience, is a very rare occurrence, being found in but two of twenty-one autopsies at the German Hospital in which subphrenic abscess was present.
4. By lymphatic extension (a) up the right retroperitoneal cellular tissue or (b) up the lymphatics around the deep epigastric artery to the falciform ligament. (Barnard.)

I believe that the second of these methods of approach is by far the most frequent. Cosentino also has laid especial stress on this as a result of his anatomic investigations and experiments with the course taken by various fluids when introduced into different localities in the abdominal cavity.

An interesting assertion in this connection is that of Lance,[4] that in the retroperitoneal form of infection, early operation will not prevent the subsequent formation of infected foci as a result of the extension in the cellular tissue. It is perhaps too broad a statement to make, that operation, however early, will not prevent this diffusion. But I have found that cases in which such infection takes place are among the most virulent and fatal of all cases of appendicitis and, when the retroperitoneal cellular and lymphatic tissues have been thoroughly invaded by the infectious bacteria, death from extension or toxemia is sure to occur.

Some of the French authors credit the appendix with a double lymph supply and state that the lymphatics of the appendix, in addition to draining to the glands at the ileocolic junction, have a close communication with the lymphatics of the ascending colon. If this be true it would furnish perhaps some reason for the frequency of the retroperitoneal origin of subphrenic abscess following appendicitis.

The infection of the subphrenic fossæ by the general circulation is mentioned by several authors as a theoretical possibility, but there has been no instance reported in which this seems to have been the sequence of events.

The extension by means of lymphatics about the deep and superficial epigastric arteries, is supported by one case cited by Barnard[6] and this he considers as not being definitely proven.

Lance[4] mentions as predisposing causes for the formation of a subphrenic abscess, several locations of the appendix, notably those in which the appendix runs high behind the colon, is retrocecal or retroperitoneal. It is perfectly evident that any one of these conditions must tend to render subphrenic abscess more likely.

III. ANATOMY

For all methods of formation of subdiaphragmatic collections following appendicitis, except that by means of the retrocecal retroperitoneal cellular tissue, we must find some anatomic explanation, for it would seem unlikely that infectious pus should gravitate in that direction. No better statement of the conditions favoring such an extension can be given than that of Barnard. He says:[5]

> The recent investigations of surgeons in connection with the treatment of diffuse peritonitis have shown that the main cause of subphrenic accumulation is gravitation. As a patient lies flat on his back in bed, the posterior extremity of his subphrenic spaces are only separated from the mattress by the skin, the ribs and the diaphragm, which together do not make up much more than ½ inch of tissues. The pouch of Douglas or the rectovesical pouch in the male, in a similar way are only separated from the mattress by the skin, the coccyx, and the width of the flattened rectum. Between these two dependent pouches the thick muscles and tissues of the loins, with the kidneys and the perinephric fat, rise as two elevated mounds. When the general peritoneum is infected, a profuse flow of serum is poured out, and this gravitates upward into the subphrenic spaces and downward into the pelvic pouch. If the patient is well propped on pillows or is supported by an efficient bed rest (Fowler's position) fluids will run from beneath the diaphragm over the loin mound into the pelvic pouch, from which it may be drawn off by a tube passed to the bottom of that fossa, from a puncture above the pubes. This method is effective in preventing subphrenic abscess only while the exudate is diffused. When it is shut in and localized, special measures must be adopted to evacuate it.

The French authors also lay great stress on these anatomic relations—indeed, the gutter formed by the colon and the abdominal wall on the right side is by them named the right parietocolic sinus (of Lafeyre).

The most minute and painstaking investigation of the anatomy of subphrenic abscess has been made by Bar-

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2. Treves, F.: Operative Surgery, London, 1905.
3. Kelly and Hurdon: Appendicitis, 1905.
4. Lance: Gaz. d. Hôp. Par., 1909, lxxxvii, 63, 99.
5. Piquand: Rev. de chir., 1909, xxxix, 150 et seq.
6. Barnard: Brit. Med. Jour., 1908, i, 371.
7. Cosentino: Policlin., Rome, 1907, xix, sez. chir., pp. 251, 386.

nard.[6] He divides all subphrenic abscesses according to their location as regards the falciform and lateral ligaments of the liver into:

A. Intraperitoneal.
  1. Right. { I. Anterior.
             II. Posterior.
  2. Left. { III. Anterior.
             IV. Posterior.
B. Extraperitoneal. { V. Right.
                      VI. Left.

A right anterior intraperitoneal abscess is one situated between the upper surface of the right lobe of the liver and the diaphragm.

A right posterior intraperitoneal abscess is one in the subhepatic pouch, a pyramidal space bounded laterally by the abdominal parietes, in front by the liver and gall-bladder, posteriorly by the abdominal parietes and having its apex formed by the upward slope of the margin of the left lobe of the liver.

A left anterior intraperitoneal subphrenic abscess or perisplenic abscess lies in the fossa bounded by the diaphragm above, the left lobe of the liver below and to the right, and the spleen to the left. It is bounded sharply to the right by the falciform ligament. Barnard describes a fossa lying between the vertebral column, the descending colon and roofed in by the mesentery by which the fossa first described communicates with the rectovesical or recto-uterine pouch.

A left posterior intraperitoneal subphrenic abscess is one situated in the lesser peritoneal cavity.

A right extraperitoneal subphrenic abscess is one formed in the cellular space between the layers of the coronary and other peritoneal ligaments of the liver.

A left extraperitoneal subphrenic abscess is one formed in the retroperitoneal cellular tissue of the left loin.

In Barnes' experience in twelve cases of appendiceal subphrenic abscess practically all were on the right side.

I have found it impossible so closely to determine the exact anatomic variety of subphrenic abscesses as has seemed possible to some investigators. They may all be grouped into those of the right and left, anterior or posterior. The intraperitoneal or extraperitoneal origin is often impossible to determine.

Of thirty-one cases at the German Hospital:

29 were on the right side only.
1 was double right and left.
1 was on the left side only.

These figures would tend to show that in most instances the extension to a subphrenic fossa from a diseased appendix is not from an accompanying peritonitis in the pelvic basin, but arises directly from the original appendiceal focus.

Numerous isolated instances of left subphrenic abscess following appendicitis have been reported.

It is, moreover, not absolutely determined that an abscess of extraperitoneal origin cannot in every way come to assume the characteristics of one of the intraperitoneal variety.

It is to my mind a refinement of diagnosis at present impracticable of accomplishment, for any one to determine definitely the variety of subphrenic abscess before operation. As will be seen later, we are fortunate indeed always to diagnose even the existence of a subphrenic abscess.

The usual contributing factors in reference to subphrenic abscess, complicating appendicitis need not be discussed at length. The bacteriology of the complicating infection is that of the original diseased focus. The incidence as to age is identical with the range of ages in appendicitis. Statistics would seem to show that subphrenic abscess is rarer in appendicitis in children. But of eight cases from the Pennsylvania Episcopal and University Hospitals in the past two years, four occurred in patients 15 years of age and under.

Pathologically, subphrenic abscess in association with appendicitis falls into three groups:

1. Those occurring or found at operation, i. e., an immediate and primary complication of the disease.
2. Those making themselves manifest as late or postoperative sequelæ during the postoperative stadium.
3. Cases occurring a long time after the primary infection.

	1. Primary	2. Post-operative	3. Late	Total
German Hospital	18	11	2	31
Collected cases	1	6	1	8
Mary Drexel Home....	1	..	..	1
	20	17	3	40

IV. THE SYMPTOMATOLOGY

The mode of onset of the symptoms of subphrenic abscess must vary with the time of its occurrence.

It has been my experience that when the condition has been found at the first operation, it has often been not definitely diagnosed. The diagnosis of appendicitis with abscess is made, but the definite localization of a subphrenic collection has been overlooked. This, however, is not always a matter of such grave importance, since at the operation the collection should be discovered, particularly if it be one formed by direct extension. There can be no doubt that, on the other hand, certain isolated and well walled-off abscesses which were present at the first operation, are at times overlooked. In the series of thirty-one cases at the German Hospital, there was one undoubted instance of this and probably one or two others.

The collection occurring as postoperative sequelæ are those in which our diagnostic powers are taxed to the utmost.

There may be two methods of onset: (a) sudden and (b) insidious.

Many surgeons have stated it as their experience that subphrenic abscess after appendicitis most often makes itself known quite suddenly. As regards the major symptoms this is no doubt true. Yet, it has been my experience, even in those cases in which the symptoms of the secondary collection came on with apparent suddenness, that the convalescence previously had not been entirely uneventful. It is quite true that the onset of pleural pain, high fever and delirium is sudden, but it appears more so if the previous malaise without symptoms of definite character has been more or less slighted.

Jopson[8] has particularly laid stress on this point. He says that "a moderate continuous elevation of the temperature, a pulse little if any above the normal, an entire absence of abdominal symptoms, and a physical expression of comparative comfort and well-being are to be *recognized as not inconsistent with the presence of a* subphrenic abscess."

Barnard's statement, therefore, that all of his twelve cases of appendiceal subphrenic abscess had an acute onset, must be considered as referring to the onset of local symptoms and of marked sepsis.

In giving, therefore, a list of symptoms of subphrenic abscess, I should place first sepsis following an operation for appendicitis without evidence of its cause, the primary incision progressing favorably.

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[8] Ann. Surg., 1910, vii, 427.

Second in importance to the symptoms of general sepsis, we find the signs of pulmonary involvement at the base of the lungs. The most valuable of these indications is the presence of a more or less marked area of dulness. In addition to this, we often find the other indications of a collection in the pleural cavity, i. e., lessened breath sounds and fremitus. In several instances in the series of cases at the German Hospital, the dulness and other physical signs have been noted anteriorly, and in one case the first indication of trouble was in the left axillary space. Pleural friction sounds are at times noted as in the case last mentioned.

The exact condition of the lung and pleural space above a subphrenic abscess, is most difficult of exact determination. The dulness and changes in the resonance and fremitus are accounted for by the pressure upward on the vault of the diaphragm. But the comparative frequency of pleural friction, cough and the occasional early occurrence of râles would seem to indicate that in many instances of subdiaphragmatic abscess there is early involvement of the pleural cavities themselves, and indirectly of the lung tissue. It is fortunate that these changes give rise to empyema as rarely as they do. Of twenty-one fatal cases coming to autopsy but five showed purulent pleurisy, and one a pleurisy with exudate not purulent. Two of these five cases showed actual perforation of the diaphragm.

The abdominal symptoms of subphrenic abscess, when present, are those of any collection within the abdomen. They are the presence of a mass; pain, and tenderness; Barnard found that in thirty-three of his seventy-seven cases a mass formed by the abscess itself was noted in the abdomen. This, however, includes cases of subphrenic abscess due to all causes. In my own experience with this form of abscess following appendicitis, the proportion of cases in which there was an abdominal swelling has been decidedly less. This perhaps is due to the fact that, since the infection is oftenest by direct extension along the lumbar fossa, the abscess is most often found deep under the liver or else above it and concealed between the upper liver surface and the vault of the diaphragm. In the latter class of cases there may be some slight bulging of the chest-wall on the infected side.

The pain encountered is localized to the area of infection, but often not definitely confined to a limited area. Indeed, the pain oftenest complained of is a pleural pain. In some cases, the onset is such that a pleurisy seems primary and the subdiaphragmatic abscess secondary. Tenderness will be encountered when the abscess presents at an accessible part of the abdomen—often it is elicited only by quite deep palpation.

Needling is an important aid in localizing suspected collections of pus beneath the diaphragm, as in those above it. Barnard recommends that it be done in a most systematic and thorough way and only under complete anesthesia. With the latter provision I cannot agree. Even in the presence of pus, our attempts at aspiration may be negative and while a positive finding confirms the diagnosis, a negative by no means sets it aside.

Mention has been made of those cases of subphrenic abscess in which the onset is long delayed. Such an instance is Case 19 of this series, in which the onset of the disease occurred a year after a primary appendiceal infection. In a case reported by Ashhurst,[9] the interval was four months, and Meisel[10] has reported an instance in which there is no doubt that a subphrenic abscess occurred one and one-half years after a primary appendicitis. In these cases, the onset is usually more or less sudden. There is a sudden awaking of a long-latent infectious focus, and the event partakes oftenest of the nature of a grave abdominal catastrophe as in the instances quoted.

The diagnosis of subphrenic abscess being a matter of such considerable difficulty, it is to be expected that the differential diagnosis is one hardly definable by strict rules. Most often the differentiation is between a subdiaphragmatic and a supradiaphragmatic condition. An important guide is the history of an antecedent abdominal condition apt to give rise to a subphrenic collection, even if the two illnesses have been separated by a considerable interval of time. How difficult this distinction is may be gathered from the numerous instances Barnard cites, in which it was impossible to distinguish between the two conditions. It is a well-known fact that intrathoracic conditions may simulate almost any acute abdominal condition in their symptomatology. How probable it is, then, that a condition localized immediately beneath the pleural cavities and separated from them by but little tissue, should give rise to symptoms practically identical to those of a purulent or merely serous pleurisy!

Only the most careful study of individual cases will give us even an approach to correct diagnosis. Of the other conditions most frequently confused with subphrenic abscess, it is necessary only to mention hepatic infection following operation. The symptoms of this condition are also often overlooked. Two authors give what they consider distinguishing features. Besredka states that there is never jaundice in uncomplicated subphrenic abscess and that the fever is not so high in liver infections. Jullard states that in liver infections the leukocytosis is higher than in any other abdominal condition—a by no means infallible sign, as in isolated instances the white blood-count has been excessive also in subphrenic abscess.

How difficult may be the diagnosis of subphrenic abscess is shown by Case 31, reported from the Mary Drexel Home. In this instance the symptoms pointed to the presence of a meningitis, and lumbar puncture gave turbid fluid. Chest dulness finally developed and pus was obtained on puncture, and the subphrenic condition made itself evident.

V. TREATMENT

The treatment of subphrenic abscess following appendicitis is that of any other collection within the abdominal cavity.

It may not be out of place here to mention certain factors which may influence the formation of subphrenic abscess and which must be considered at the primary operation.

Primarily, when there is a localized collection, it is essential to explore it as to its extent and direction. When it is drained, the drainage must be sufficient.

When pelvic pus is present, the pelvis must be drained, no matter how slight the amount of fluid may be.

If there be a diffuse peritonitis, it is essential that the patient be placed in a semisitting or Fowler position to facilitate the gravitation of septic fluids away from the diaphragmatic area.

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[9] Ashhurst: Tr. Philadelphia Acad. Surg., 1910, xiii, 154.

[10] München med. Wchnschr., 1909, lvi, 1411.

The appendix should be removed whenever possible, to prevent its acting later as a source of infection.

The operations for subphrenic abscess may be classed in three groups:

1. The Abdominal or Loin Incision: This is applicable to those cases in which there is definite pointing of the abscess either in the upper abdominal area or in the loin. It must be placed so that we can procure the maximum of exposure to the diseased area. The further procedure is that of any abdominal abscess.
2. The Subpleural Route: This incision consists of resection of the tenth rib in the midaxillary line and traversing the diaphragm below the pleural reflection.
3. The Transpleural Route: According to the probable location of the pus, one or two ribs are resected, the pleura opened and the collection evacuated through the pleural base. The only point of importance in this operation is the suturing of the two layers of the pleura after incision before opening the subdiaphragmatic abscess—this to prevent diffusion of infectious material throughout the pleural cavity.

In all of these methods of procedure there must be drainage by tubes of sufficient caliber and rigidity to insure the evacuation of all infectious fluids.

Case 1.—J. D. Death April 16, 1901. Diagnosis, acute appendicitis. Incision about 8 inches long made through the right rectus. Intestines showed evidence of diffused peritonitis. General cavity walled off with gauze; appendix found up under the liver, gangrenous and perforated. Small quantity of pus present; some pus between the diaphragm and the liver. Appendix removed.

Case 2.—J. P., aged 23. Death March 13, 1902. Diagnosis, acute appendicitis. At operation the following note made: "Secondary abscess up near the liver."

Case 3.—F. E. W., aged 16. Death July 13, 1902. Diagnosis, acute appendicitis. Incision through the right rectus muscle; appendix outer side of the cecum; gangrenous and perforated. Abscess cavity extended up underneath the liver, and there were numerous adhesions in the locality. Appendix removed. Drainage; one piece of gauze extended up as high as the liver.

Case 4.—J. G. R., aged 52. Death Dec. 13, 1902. Incision 5 inches long in the right linea semilunaris over a mass about 2 inches by 4 inches, which can be palpated under ether. Appendix found covered with a large mass of exudate to the outer side of the cecum and ascending colon. Mass extending almost to the liver margin. Fifteen days after operation, sclera yellow, tenderness over the liver, with edema over the right costal margin. Very weak. Two days later: "Liver tenderness still present." No necropsy.

Case 5.—Daniel J. S., recovery, April 30, 1904. Diagnosis, acute appendicitis. At operation the following noted: Incision 20 cm. long, along the outer border of the rectus (right); omentum found adherent to the parietal peritoneum; bowels bound together generally by numerous adhesions; general peritoneum walled off by pads and the adhesions freed in the right iliac fossa; the appendix not found in the right iliac fossa.

Then the ascending colon was freed from adhesions almost up to the liver. To the outer side of the ascending colon just below the liver, a small pocket of pus was opened. This was swabbed out and a fecal concretion was found bound up in a mass of adhesions and exudate.

Case 6.—Cora L. Recovery May 27, 1904. Diagnosis, appendiceal abscess. At operation, March 22, 1904: Incision 5 inches long through the upper right rectus; edema of the peritoneum, on opening of which a large amount of pus escaped. Intestines and the under surface of the liver protected by gauze pads. Free pus welled up from the flank. Appendix not sought for; neither was the gall-bladder. Six pieces of gauze inserted for drainage; two pieces in the flank; two pieces under the liver; and two pieces to wall off the cecum and the ascending colon.

April 11, patient had an attack of right-sided pleurisy.

May 9, the tract extending back under the skin was laid open. It was found to communicate with another tract in which a rubber tube 15 cm. long was placed. This tube extended upward, but whether above the liver could not be determined.

May 27, patient discharged. Sinus seemed to be closing from the bottom.

Case 7.—J. B. C. Death March 11, 1905. Diagnosis, acute appendicitis. At operation the appendix found high up on the cecum and beneath the right lobe of the liver. No abscess. The appendix semigangrenous.

Before operation note was made of the tenderness of palpation over the upper part of the right iliac region. Postmortem showed a feeble attempt to wall off the infected area and general peritonitis.

Case 8.—F. W., aged 23. Death April 2, 1905. Diagnosis, acute appendicitis. At operation the appendix found and removed, also abscess around it.

At second operation "peritoneum opened and adhesions found between the gall-bladder and the liver; great omentum and hepatic flexure of the colon. These adhesions were broken up and a small quantity of pus oozed from the outer and under side of the liver margin. Pus was traced and found a large abscess the size of an orange between the liver and the diaphragm which was evacuated. Drain with tube and gauze."

The patient had four operations before he died: (1) for appendicitis; (2) for subdiaphragmatic abscess; (3) gastro-enterostomy and entero-enterostomy; (4) iliosigmoidostomy for obstruction.

Case 9.—E. M., aged 26. Death April 24, 1905. Diagnosis, acute appendicitis; abscess. At post-mortem, a subphrenic abscess found.

Note from the post-mortem: "Adhesions separated and the appendix found 11.5 cm. in length pointing directly upward towards the liver and lying beneath the abscess cavity. Appendix gangrenous at the tip." On lifting up the colon and separating the adhesions a large abscess was found extending upward beneath the liver and containing about 250 c.c. of thick, yellowish pus.

Case 10.—C. F., aged 15. Death July 20, 1905. Diagnosis, acute appendicitis. Post-mortem findings: "Large abscess beneath the liver entirely walled off."

At operation the appendix had been removed and the abscess *drained*.

Case 11.—Alice H., aged 21. Death Aug. 7, 1905. Diagnosis, acute appendicitis. At post-mortem subdiaphragmatic abscess found. At operation a counter incision in the loin made for drainage. First incision was oblique. Appendix not found at operation. Two weeks after operation the patient began to expectorate pus.

Post-mortem notes: "Region of the appendix showed a plastic peritonitis. There is a large abscess between the right lobe of the liver and the diaphragm which has ruptured through the diaphragm into the right pleural cavity and then into the lung which shows septic bronchopneumonia."

Case 12.—Magdeline H., aged 32. Death Aug. 10, 1905. Diagnosis, acute appendicitis. On examination, great tenderness between McBurney's point and the right costal margin. At operation the appendix found high up beneath the liver, gangrenous at the tip and perforated. Counter-incision made in the midaxillary line to the right of the upper angle of the original incision. Just before death, tenderness noted below the liver. At post-mortem, an abscess found to the outer side of the liver.

Case 13.—Septimus A. K., aged 26, Death, 1905. Diagnosis, acute appendicitis with abscess. Appendix found pointing upward, gangrenous and perforated; foul-smelling whitish pus escaping from the abscess to the outer side of the cecum. At post-mortem a secondary abscess found beneath the liver.

Case 14.—Katharine A. Death May 1, 1905. Diagnosis, acute appendicitis, and subphrenic abscess. Noted at operation. In the examination of the patient the following note is made: Tenderness present; most marked just below the costal border, anterior axillary line, right side. At post-mortem examination a subphrenic abscess and a lobar pneumonia of the right lung found. Appendix removed; found pointing toward the liver. The appendix was gangrenous.

CASE 15.—Samuel S. Death Dec. 17, 1905. Diagnosis, acute appendicitis; subdiaphragmatic abscess found at post-mortem. On physical examination tenderness noted in the right flank No tenderness on the left side. At operation an appendiceal abscess found. Post-mortem: Perforation of the appendix at the site of the fecal concretion. Large abscess walled off and located beneath the liver and between the liver and the diaphragm. No evidence of general peritonitis. Incision through right semilunar line.

CASE 16.—Margaret P., aged 43. Recovery March 29, 1906. Diagnosis, acute appendicitis with abscess. At the first operation, the appendix removed. No mention of any subdiaphragmatic abscess. At the second operation, the incision made through the right rectus to the costal margin. Abscess evacuated outer and under surface of the liver.

CASE 17.—Thomas F. A. Death April 19, 1906. Diagnosis, acute appendicitis. At operation the appendix found postcecal, gangrenous and perforated. Free pus in the peritoneal cavity. Post-mortem note: Large purulent collection around the liver and on the left side beneath the transverse colon. General purulent peritonitis.

CASE 18.—Lena E. Recovery May 13, 1907. Diagnosis, acute appendicitis. Extraperitoneal incision. Peritoneum thickened and congested. Opening the peritoneum which bulged into the wound, large amount of free, foul-smelling pus escaped; carefully wiped out. Appendix sought for. Finger run up outside of cecum toward the liver. Large amount of free pus found here and evacuated. More pus escaped in manipulating down toward the pelvis. Appendix removed. Second operation for fecal fistula.

CASE 19.—Nicholas B, aged 19. Recovery June 23, 1907. This patient was in the hospital in March. The case was diagnosed as chronic appendicitis and the patient was operated on for that. The appendix was removed and uneventful recovery resulted.

In the history of the second admission is noted the following: "One year began having pain in the right lumbar region, coming once or twice a week, running around to the right abdomen, at times to the testicle and now it goes down the thigh. For a week after the operation, the patient was relieved but on the day of discharge he felt his old pain. Does not vomit. Never passed bloody urine; no gravel, but he claims he passed crystals. At times his urine was very dirty-looking. Makes urine twice at nights. Often has stoppage of the stream during the act. Since admission, he has had pain in the left lumbar region similar to that in the right side save not transmitted to the abdomen."

Physical examination notes the following: "Posteriorly below the angle of the right scapula is a prominence the size of the palm, tender to palpation. Spine negative. A very tender point in the midaxillary line just below the costal margin." At operation, incision over the tenth rib; resection of this rib. A large amount of bloody semipurulent material was evacuated. Origin was not discovered; seemed to come from under the surface of the right lower lobe of the liver." Patient received great relief from the operation and made a rapid uneventful recovery.

CASE 20.—Dr. V. Death March 6, 1908. Diagnosis, acute appendicitis. Began with diarrhea. Stools a bright yellow, frothy, with a little odor.

Patient vomited and was "bilious." On the day before admission he had sudden severe agonizing pain shooting from the right lumbar region around to the inguinal region and up the anterior and lateral aspect of the chest. Taking breath at this time caused severe pain. Patient had cold sweat at time of pain but no chill. Resonance was impaired over the right chest. Two inches above the normal liver dulness, there was flatness.

Post-mortem notes: Gangrenous appendix which had sloughed off. Extraperitoneal and subdiaphragmatic abscess. Extending up to the diaphragm there was a pus cavity between the right lobe of the liver and the diaphragm, which contained about 50 c.c. of yellow pus. Right diaphragmatic pleurisy. Lung showed no noteworthy changes.

CASE 21.—George F. Death Oct. 30, 1908. Diagnosis, subdiaphragmatic abscess. About one year previously the patient had an attack of acute appendicitis and was operated at another hospital. He had drainage. After the operation he was all right. He had some trouble with his stomach.

Present illness began about six weeks before with severe cramps in the abdomen which required morphin. The pain subsided and the patient had a soreness in the abdomen. He did not vomit at first but has several times since then. Did not vomit the food he had eaten but vomited a greenish fluid. Bowels were very constipated; appetite fair and patient has had no trouble in urinating.

Physical examination: Abdomen moderately distended; very rigid in the epigastrium and the left hypochondrium. In the left side in the costal margin was felt a mass on deep palpation somewhat tender and immovable. No tenderness over the gall-bladder.

Operation: Incision in the upper abdomen through the right rectus down to the peritoneum. Peritoneum opened and gall-bladder exposed. No lesion in the stomach. Stomach was lifted up and underneath the liver was evacuated an abscess containing pus and gas. Intestines packed away. Abscess evacuated and two pieces of gauze introduced. After notes: Patient developed a severe cough with a foul-smelling expectoration (purulent). Examination of the left axilla showed signs of cavity formation. Needle introduced and pus was obtained. Patient gradually became more and more septic and died.

CASE 22.—Henry M. Death June 12, 1909. Diagnosis, acute appendicitis. At first operation the appendix was removed and the abscess drained. Appendix was gangrenous and perforated. Four weeks later patient noticed a dulness in the left axillary line, beginning at the transnipple line. There was pleural friction here; absence of breath sounds over this area; no fremitus, more tender in the splenic region.

At operation: Incision over the tenth rib in the axillary line; resection of this rib (1½ inches); pleura and diaphragm perforated with the finger and a large amount (500 c.c.) bloody pus escaped coming from below the diaphragm and from around the spleen. Many recent pleural adhesions about the base. Drained, etc. Third operation ten days later. Resection of the seventh rib. At first no pus was located; later a subdiaphragmatic abscess was located and the thick yellow pus evacuated. (In the notes there is no mention of the incision being right or left but from the previous mention of the dulness in the left axilla, I presume that the two abscesses are in the left; also because the spleen is mentioned.)

CASE 23.—Oliver M., aged 17. Death July 14, 1909. Diagnosis, acute appendicitis. At operation appendix found behind the cecum. The appendix removed. Pus present. One month after operation patient was troubled with pain in the right chest with dulness and distant breath sounds for one week. Aspirated, blood but no pus. Later the patient became delirious. One week later the right chest was aspirated and pus found.

Operation: Incision over the ninth rib; part of this rib removed and about 500 c.c. of thin pus drawn off. Later 2,000 c.c. of similar fluid was removed from the cavity. Note of July 14, 1909: "No post-mortem but lesion considered to have been a subdiaphragmatic abscess with rupture into the pleura."

CASE 24.—Moritz H., aged 65. Death March 10, 1910. This patient was admitted to the medical wards, the case being diagnosed as carcinoma of the cecum. Note was made that the patient was simple-minded and did not answer questions sensibly. Patient had not been well for a couple of years, but not seemingly sick until six months previously, when a profuse diarrhea began which lasted during this illness. Patient had noticed a mass in the lower right side of his abdomen; a double direct hernia has also given him trouble. (From his daughter it was learned that he had had a definite attack of pain in the abdomen about one year ago.)

Examination: Liver dulness began at the top of the fifth rib and extended below the costal margin for a distance of 1.5 c.c. Liver was smooth and the edge was not easily palpable. In the right lower abdomen was to be felt a mass of moderate density, fixed. It did not move on deep respiration. Tympany was elicited in front of it. It was tender and painful on palpation. There was hernia on each side, not complete.

Patient died of edema of the lungs. The necropsy was performed by Dr. Kelly and the diagnosis of abscess made. At post-mortem there was found a large abscess in the region of the appendix, one around the liver and pancreas and one around the spleen, all old processes and all walled off.

Case 25.—Michael McC., aged 44. Recovery May 26, 1910. Diagnosis, acute appendicitis with abscess. At operation the abscess cavity found extending to the diaphragm; part of the tenth rib resected and the abscess drained; a loin incision made and one up right rectus; the two connected. "Abscess, found postcecal and extended to the diaphragm." Vaccine treatment helped to heal in this case.

Case 26.—Lewis E. Recovery Dec. 2, 1910. Diagnosis, acute appendicitis with abscess. At operation, appendix was found lying in thick yellow pus. The appendix removed; incision was enlarged upwards; subhepatic fossa covered with exudate. Two pieces of gauze carried to the fossa.

Case 27.—Harry H., aged 23. Death Dec. 9, 1910. Diagnosis, subdiaphragmatic abscess. Operation: (1) Straight incision. Pus found, subhepatic; (2) loin incision and pus found, subdiaphragmatic; (3) incision in the tenth interspace and much pus escaped. Appendix found retrocecal, gangrenous and perforated, extending to the subhepatic fossa; removed.

Case 28.—George E., aged 49. Death Dec. 28, 1910. Diagnosis, subdiaphragmatic abscess. Pain in the lower abdomen right side. One day's duration. Incision in the eighth interspace; resection of the ninth rib; pleural effusion. Diaphragm pierced, evacuating a subdiaphragmatic abscess. On Dec. 25, 1910, empyema tapped and 500 c.c. of foul pus drained.

Case 29.—William H. M. Recovery Dec. 28, 1910. Diagnosis, subdiaphragmatic abscess. Pain under the right costal border. Pain for two weeks in the right subdiaphragmatic region. Patient sick for four weeks. Incision in the postaxillary line and 5 c.c. of the ninth rib resected. Nothing in the pleural cavity. Diaphragm opened and pus evacuated.

Case 30.—Walter C. Recovery Jan. 15, 1911. Diagnosis, acute appendicitis. At operation a right-sided subdiaphragmatic abscess was found. Pain in the abdomen and distention. Three days' duration. No pain in the costal margin. Dulness in the upper right abdominal quadrant. Operation: loin incision; appendix gangrenous, perforated and amputated. Subdiaphragmatic abscess found and drained.

Case 31.—Emma K., aged 10. Death April 13, 1910. Family and previous medical history negative. No history of previous appendiceal attacks. Patient admitted to the Children's Hospital of the Mary J. Drexel Home on March 19, 1911. The attack began the day previous suddenly at school after eating light breakfast. Patient had severe abdominal pain and projectile vomiting. There was restlessness which passed almost immediately (in a few hours) into semiconsciousness and later complete unconsciousness. There was violent delirium. The next day the temperature rose to 104; respiration 24; pulse 128.

On admission the child was violently delirious. She was lying on the left side with her head drawn back; thighs (both) flexed on the abdomen; legs flexed on the thighs. The patient was restless and irritable. Every fifteen minutes she would have a general clonic convulsion. Meningitic cry present. The fingers were tightened into the palms during these attacks. Examination at that time showed heart and lungs negative. The abdomenal walls were rigid but not distended, and there was apparently great tenderness all over the abdomen, more marked in the right lower quadrant. Knee-jerks were absent; no ankle-clonus. Babinski and Kernig positive. Slight opisthotons. Lumbar puncture showed tension of fluid very low, 10 c.c. obtained of cloudy fluid. Examination revealed marked increase in polynuclears; no increase in albumin; 15 c.c. of Flexner's serum injected.

March 20, 1910: Day after admission. Temperature normal; child rational and comfortable; abdomen relaxed and not tender

March 21: High fever all day; temperature 105; respiration 40; pulse 130—irregular in type. Vomiting frequent; regurgitation of bile. The whole abdomen was very tender. Patient had five loose, watery, yellow stools. No rigidity of the neck. No exaggeration of knee-jerks; no clonus; right ear discharging; left tympanic membrane, red but not bulging. Was punctured by Dr. Bliss. Surgeons decided peritonitis was not present and advised against operation. Similar puncture 8:30 p. m.; 11 c.c. turbid red serum obtained; 15 c.c. antimeningitic serum injected.

March 25: Temperature again elevated; child very ill; abdomen distended and generally rigid; vomiting has ceased; bowels greenish and frequent. Spot of dulness obtained over the base of the right lung, with marked resistance to finger and consolidation was suspected. Breath sounds not increased.

March 27: Condition better; abdomen tender but soft. Tenderness more marked in upper right quadrant. Examination still showed spots of dulness in chest. Temperature 103; pulse 120; respiration 40. Dr. J. B. Deaver advised against operation when brought into consultation with Dr. Hand and Dr. H. C. Deaver.

March 29: Temperature lower, 102; respiration 44; pulse 116. Physical signs show same area of dulness.

March 31: Child's general condition seems much improved. Chest condition reveals dulness extending downward from the seventh interspace, in postaxillary line; breath sounds very distant. No edema or bulging of interspaces. Temperature 100, pulse 108, respiration 44.

April 2: Needle introduced in the eighth interspace in postaxillary line downward and forward 4 inches. Pus obtained. Child somewhat emaciated. Liver could not be palpated below costal border. Abdomen somewhat distended but no tenderness or rigidity.

April 3: Operation: Dr. H. C. Deaver made incision over the seventh rib. Diagnosis, empyema. Rib resected; the pleural cavity explored; small amount of sero-pus found; finger introduced downward through the diaphragm and a large subdiaphragmatic abscess evacuated, probably 2 pints of foul-smelling pus. Diaphragm was then stitched to the muscle and pleura, so as to isolate pleural cavity. Large drainage-tube inserted into the abscess and a tube of smaller caliber inserted into the pleural cavity. Culture of pus showed colon bacillus.

April 13: Child died suddenly after dressing of cardiac syncope. No post-mortem obtainable.

Collateral Findings.—Leukocytes varied from 28,950 on admission 3-20-10, with 96.5 per cent. polynuclears, to 14,000 with 86 per cent. polynuclears at operation, April 3, 1910.

March 28: Blood-culture sterile. Urine showed faint trace albumin; no casts. Culture showed colon bacillus. Cerebrospinal fluid showed large numbers of polynuclear cells; no micrococci.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ROSS AND KNOTT

Dr. Thomas W. Huntington, San Francisco: In a long experience, attended with occasional humiliations, I have arrived at this conclusion with reference to the removal of the perforated appendix at the time of the initial undertaking: First, a condition which appears simple in the beginning may involve an exercise of the highest surgical judgment and skill. Second, the question of the removal of the appendix at the time is one which can be decided only at the time. In a word, the appendix at times can be removed even though it seems to be fairly well incorporated in the abscess wall; while on another occasion to touch an appendix which is incorporated in a barrier in the wall, is to invite failure if it does not insure it. My guide in this matter has been the condition existing prior to operation. If we can be perfectly sure that we are encountering a vicious type of infection, if the patient is melting down under it, if he has deteriorated materially within the preceding twenty-four, forty-eight or seventy-two hours, I have come to regard the appendix as being governed by the principle of *noli me tangere.*

Dr. W. W. Grant, Denver: There is no more unfortunate sequel to or complication of appendicitis than the subdiaphragmatic abscess. We know no such thing as an acute primary appendicitis. Dieulafoy some years ago called attention to the fact that certain forms of appendicitis particularly were prone to infect the regions of the liver, resulting in general sepsis and death, or the formation of an abscess which for its ramifications seems to have no end. I have myself called attention several years ago to the fact that the postcecal and postcolonic cases were the ones in which we expected this manifestation of appendicitis. Ordinarily in the beginning of these cases the tenderness and the pain point is not the McBurney, but it is at the intersection of the angle 2 inches to the right of the umbilicus, and about 2 inches above the McBurney point. If in these cases this point of intersection is examined carefully, it will indicate the location of the appendix.

It is a fact that the delay in operating is most frequent in this class of cases, and the resulting consequences only emphasize what we already know, that it is a serious matter to delay diagnosis, and thus delay performance of appropriate and immediately demanded operation, which is necessary to avert these serious consequences.

In other words, this form of trouble frequently called empyema, after the abscess has perforated the diaphragm, and the patient is expectorating pus through the bronchial tubes, is still not an uncommon consequence and error at the present time; and it is because the profession does not make early diagnoses and still further because early operation is not done to prevent these ulterior sad consequences, that a reflection is cast on the diagnostic skill and acumen of the profession.

In reference to the abscess cases, my own rule has been to remove the appendix whenever possible, without opening the peritoneal cavity. I still see no urgent reason, in the absence of peritonitis and extravasation, why we should open the peritoneal cavity. Why not pursue the safer course and avoid the added danger of exposing to infection healthy peritoneum, and thus have occasional bad sequelæ in the form of general peritonitis and possible death.

With drainage, results are good; a second operation to remove the stump is seldom required, and when so, it is under more favorable conditions than exists in acute abscess.

Dr. Archibald MacLaren, St. Paul: The point which Dr. Knott raises here is the question of the treatment of peritonitis. We have all accepted Dr. Murphy's theory in regard to the treatment of general peritonitis, then by following Dr. Knott's suggestion we advance it to a protective measure and so we do away with the troublesome and dangerous complications which so often follow the older methods as we have all been accustomed to pursuing them.

The universal removal of the appendix, which was advocated by some surgeons a number of years ago, was on the wrong principle, because they did not provide for drainage of the cul-de-sac. The success of all acute appendiceal operations goes back to the proper drainage of the bottom of the peritoneal cavity. My own personal experience before adopting this suggestion of Dr. Knott's was that in 100 appendiceal abscess cases, I found that to get the patient well, I had to open and drain through the rectum fifteen times. Possibly some of these patients would have recovered if let alone—but when you have a distinct abscess pointing in the anterior wall of the rectum, the safe thing to do is to open and drain it. Now, by following Dr. Knott's suggestion in practically all these cases of appendicitis it has only been necessary to open the rectum twice in fifty cases. So that has reduced the necessity for rectal drainage in my experience just one-half.

One of these cases of rectal drainage is quite interesting, because the patient had originally come with an appendiceal abscess which had been opened above and drained. Six days later he had to have an opening through the rectum to get rid of an accumulation of pus. He recovered and was perfectly well for one year and a half. Then he came back again with another appendiceal abscess. This abscess was opened above and the appendix removed, a drain was put through a suprapubic stab into the cul-de-sac. He did well until the fourth day when he had to have his rectum opened again before he entirely recovered.

My experience during the last year agreed with Dr. Knott's. In all abscess cases, I have opened the abscess, broken down the adhesions and removed the appendix in every case without a death. I have had two deaths in appendiceal cases this past year. One was in a young man with acute general septic peritonitis, opened and drained in the first thirty hours. The other was an intestinal obstruction due to an adherent appendix, operated on after she had vomited fecal matter for over forty-eight hours. The first was a case we would all operate on under any system. The second should not have been operated on at all, but surgery had to shoulder the responsibility of neglect.

Dr. A. J. Ochsner, Chicago: The results in as skilled hands as Dr. Knott's I believe will be good with the removal of the appendix in practically all cases. I follow this rule: In any given case in which I can be practically certain that, with the experience that I have had with similar cases, the patient will get well if I remove the appendix, I always remove the appendix. If there is the least possible doubt in my mind concerning my ability in the case under consideration I drain and do not remove the appendix. I always drain in cases in which I do not remove the appendix. I leave the wound open entirely—put in an enormous drain and see to it that the patient gets a very handsome ventral hernia.

Then I direct this patient to live on liquids until the appendix is removed. In two instances in which I had not taken this precaution, the patients ate carelessly after a time and died, one of an acute intestinal obstruction and the other one of an acute recurrent gangrenous appendicitis with diffuse peritonitis. Both patients were shipped into the city from the northern peninsula of Michigan, and when they arrived they were practically dead. Since I had these two experiences in which I was not positive enough in my directions I insist on the patient living on liquids.

I have never lost one patient in these secondary cases since I have postponed the second operation until the acute conditions had entirely subsided, and I have never had one in which the ventral hernia could not be cured safely; but I do not hurry about the secondary operation. Some years ago I was anxious about these cases and sometimes made the secondary operation too early, and in that class of cases I lost several patients.

As regards opening down into the cul-de-sac, the results which the essayist gives show that this is a good method. But I have never followed this method, because by simply removing the appendix and making a stab wound laterally and draining through this stab wound and then placing the cecum down on the drainage and placing the omentum around the wound, my results have been satisfactory. But evidently this method is at least as satisfactory.

The point that Dr. Knott makes about placing the patient on the right side and keeping him there and keeping the head of the bed elevated is a very important matter. In our recovery wards we have three beds in a row, and I noticed some years ago that the patient who had the left side of his bed along the wall, and who was compelled therefore to lie on the right side, always did well; and the patient along the other wall never did well—because he could not be kept on his right side. He would roll over to see some other patient, speak to the nurse, or do something else equally reprehensible. Since that time I have insisted on placing this class of patients in the bed first mentioned.

Dr. William Fuller, Chicago: I believe the rule that should govern the surgeon in dealing with practically all acute suppurations, whether in the head, chest, abdominal or pelvic cavity, or elsewhere, is that of drainage and that only.

It is possible, of course, for skilled surgeons to remove the vermiform appendix in acute suppurative conditions, and instances may be met with in which the plan is a safe one; but when adhesions must be broken down in order to accomplish this step, it is not without danger in the best hands. For operators with moderate skill and for young surgeons the method is not to be recommended.

I heartily agree with Drs. Ochsner and Grant who do not, as a rule, break down adhesions to remove the appendix in acute cases; but who first drain, then remove the appendix later. Adhesions are life-savers and should not be disturbed merely for the purpose of removing an organ which can be removed without danger subsequently.

Dr. W. T. Reynolds, Kansas City, Mo.: Recent studies of the blood have taught us that in localized abscesses there has been an autogenous vaccination which has brought about a great resistance. In peritubal abscesses we never think of draining the abscess and leaving a leaky tube. The same proposition confronts us in the vast majority of instances in localized appendiceal abscesses. It is not usually hard to find a line of cleavage which makes it comparatively easy to divide the adhesions and find the diseased appendix. I am heartily in accord with the essayist and have found in my own experience a greatly reduced mortality in fearlessly draining from the bottom of the pelvis.

Dr. Van Buren Knott, Sioux City, Ia.: Not many years ago at a meeting of this society we listened to claims that no appendicitis patient should be operated on. So I am not surprised to find men still claiming that a leaking, stinking appendix should be left in an abdomen to make the patient as uncomfortable as possible. Reform does not always come at once, but slowly and usually through hard knocks. But as far as my own experience is concerned, I am removing this appendix for a different reason. Some seem to think that the removal of the appendix at the time of the original operation is merely a matter of cosmetics—not that there is any reason to think that its removal can do the patient any good. But that is not the point. We remove the appendix to lower the mortality; and my mortality has been reduced from 8 to 1 per cent. in these cases; and these men will have to show me a lower mortality than 1 per cent. in these abscess cases before I will agree with them.

Sioux City is a small town, but we are near Missouri; and we shall be glad to show anybody who doubts the kind of work we are doing there. Two or three good men in Omaha and in Kansas City, Dr. MacLaren, of St. Paul, and other men throughout the middle west, are doing this kind of work. Dr. Ross tells me he has not left an appendix in the abdomen in four years and that in nearly every one of these cases he has described to you of subphrenic abscess, that came to post-mortem, he found there was always an appendix left. It is a fact that patients will not die from peritonitis; we did not have a death from peritonitis in this series of cases. I believe most cases of circumscribed abscess will die of sepsis rather than peritonitis, and they will be more apt to die of sepsis if drainage is superficial.

I am surprised to find so many different hidden pus pockets scattered through the lower portion of the pelvic cavity. These could not be reached by incomplete surgery. In my experience such surgery leads to an unnecessarily high mortality.

It is all nonsense to say that after the abdomen is opened you will decide whether or not you will remove the appendix, because no man can decide whether an appendix will come out hard or easy, if it is more or less tangled with adhesions.

No one should undertake this operation who is going to occupy thirty minutes in finding the appendix and getting it out after the peritoneum is opened; and if he does start to remove it and backs out because it is a little hard, he has exposed his patient to all the trauma he would get any way.

Dr. Ochsner says if he thinks his patient is going to die, he leaves the appendix. But this is just the class of cases in which we remove them.

Dr. George G. Ross, Philadelphia: I agree with what Dr. Knott has said. I have not left an appendix in four years, and as yet I have had no occasion for regret.

I believe that the mortality in these acute appendicular localized abscesses is not so much due to the infection of the peritoneum as it is to the fact that the infection gets behind the endothelial coat of the peritoneum. It is this type of retroperitoneal infection that is attended by a very high mortality for the reason that the retroperitoneal space cannot be drained.

TUMORS OF THE MESENTERY

WITH A REPORT OF FOUR CASES *

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In spite of the contributions that have appeared from time to time concerning mesenteric tumors and the interest manifested in certain reported cases, there is good reason to believe that these growths have been neglected and that they have not received the systematic attention to which their importance entitles them. That they are comparatively uncommon is admitted; but this would seem to supply a stronger reason for their careful study. When one has to depend on text-books or even on readily available periodic literature, one must encounter serious difficulty in the management of such cases. Under the clearest conditions, they require judgment and, above all, experience which may be gained at the cost of stumbling on them unawares.

In this paper an attempt will be made, first, to classify the *existing pathologic and clinical knowledge of the* subject; second, to record some personal cases, which will bear on questions of diagnosis and operative method; and third, to review the important articles found in the recent literature. It will not be necessary to go into historic detail, since Douglas[1] covered the facts in 1903, and both Vance[2] and Bowers[3] restated them in 1906.

ORIGIN

Our topic includes only those tumors which originate in the mesentery itself and not the so-called retroperitoneal growths. The latter may arise from any tissue behind the peritoneum and push forward between the layers of the true mesentery. They have served in a way to confuse the classification.

In order to appreciate the situation and character of these tumors, it is well enough briefly to consider the mesentery, its development and its structure. Any fold of peritoneum connecting a part of the intestine to the posterior wall of the abdominal cavity may be called a mesentery, though this unqualified term is generally employed to designate the special portion of the membrane attached to the small intestine (*mesenterium commune*).

In the development of the embryo, as the right and the left halves of the body cavity come toward each other, the early connective tissue is compressed into a primitive mesentery, which is attached to the whole length of the alimentary tube, from the stomach to the anus. Intestine and peritoneum are developed together, two layers of the serous membrane investing the bowel. When fully formed the mesentery is fan-shaped, its length of insertion being many times that of its fixed attachment. It runs obliquely from left to right, extending from the second lumbar vertebra, crossing the spinal column, to the right sacro-iliac joint. Its root, or point of origin of the two layers, is 6 inches in length, while the convex intestinal edge is 21 feet long (Gray).

Between the two layers of peritoneum that constitute the mesentery, run arteries, veins, lymphatic vessels, lacteals, and nerves—all imbedded in connective tissue and fat. These enter and leave through the posterior space, where the intestine is not completely surrounded by serous membrane. It is readily seen, therefore, that tumors of the mesentery must be largely of the mesoblastic or connective tissue type.

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* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

1. Douglas: Surgical Diseases of the Abdomen.
2. Vance: Ann. Surg., 1906, lxiii, 366.
3. Bowers: Ann. Surg., 1906, lxiv, 892.

VARIETIES

Growths of the mesentery may be solid or cystic. Cysts are by far the more common and, according to their contents, are either serous, chylous, hemorrhagic, hydatid or dermoid. Solid tumors are benign or malignant. The former are lipoma, myxoma and fibroma and the latter sarcoma. It is very probable that the lipomata greatly outnumber the others, but sarcomatous degeneration is said to take place sooner or later in the majority of the simpler neoplasms. The lipomata and fibromata are very often prone to attain an enormous size. The pathology of these tumors differs in nowise from that of similar growths in other organs.

ETIOLOGY

Little can be said of the etiology, because, indeed, little is known of it. Undoubtedly, some growths are congenital in origin, and certainly many exist for a long time before they are recognized. It is in such cases that the influence of trauma is given credence, for an injury may light up or call attention to a preexisting growth. Bachmann[4] refers to this fact in his report of the case of a boy of 9, who, eight weeks before examination, had fallen across a barrel and on whom an autopsy was done two months later, which showed large masses of multiple fibromata in the mesentery. He quotes Pean as having noted the fact that large tumors may be present for years, only to be revealed in their final stage by some sort of traumatism. Age and sex apparently are not factors in the occurrence of these growths. In childhood, however, we very rarely meet the solid tumors.

REPORT OF CASES

Before discussing more practical questions, it will be well to put on record the cases which form the basis of this paper. By virtue of those peculiar coincidences which sometimes crop out in our work, four mesenteric tumors fell to my lot last year, within the space of six months, the last three coming all within a period of a little more than one month. They are presented in the order of their occurrence.

CASE 1.—*Dermoid Cyst of the Sigmoid Mesocolon.*—Mrs. Y., aged about 40, of frail constitution, mother of three children, two weeks before coming under observation, had a sudden severe abdominal pain, beginning in the right iliac region, but quickly transferred to the left; she vomited and had fever. There was a history of previous colics and of one attack nearly a year before resembling this, except that the pain was chiefly in the bladder region.

Examination.—On the first visit, March 28, 1910, temperature was 101; there was pain and tenderness all over the abdomen, but particularly at the border of the left rectus, low down; very little distention. At the second visit, evening of same day, the tenderness was much less, but the fever much higher (104); local signs diminishing. It was agreed that no interference should be advised until the acute process had passed away. By April 12 there was a practical subsidence of fever and pain; the abdomen was flat and the patient's general condition was good. Local symptoms were centering in the right lower iliac region, where a very sensitive mass could be felt; this mass was easily palpated on bimanual examination and gave indistinct fluctuation. A likely diagnosis was pyosalpinx, but in the absence of any history leading to that affection, it was considered improbable. No definite statement was ventured.

Operation.—Rex Hospital, April 13, 1910: right rectus incision. A mass of adhesions was encountered around the bladder, uterus and cecum; the sigmoid flexure had been drawn far over to the right and within the folds of its mesentery, near the intestinal border, was found a somewhat flattened cyst of the size of an orange. In the process of enucleation the cyst was ruptured and the character of its contents—teeth, hair and bone embedded in a mushy material—was determined. The mesenteric vessels were uninjured and no ligatures were required, only whipping over the edges with catgut. The uterus, tubes and ovaries were normal; the appendix, being engaged in the adhesions, was removed. A drainage tube with tape was inserted into the lower angle of the wound.

The patient had a very pleasant recovery and is in better health than she had been for several years. The specimen (Fig. 1) is a typical dermoid cyst, containing hair and a well-marked alveolar process with several perfect teeth.

Dermoid cysts of the mesentery are, of course, very rare. According to Bell and Yeoman,[5] up to 1908 about 150 cases of mesenteric cysts were found scattered throughout the literature; but of all these cases, there are certainly not more than twenty described as dermoids. These writers report a dermoid of the jejunal mesentery in a woman of 24, which was felt as a large, round, tender and movable "lump" between the uterus and the bladder, and thought to be a fibromyoma of the uterus. It was found lying between the folds of the mesentery with a loop of bowel curving around it. Attempts at enucleation being unsuccessful, the entire cyst was excised, the hole in the mesentery closed and a loop of bowel resected. The patient made a tedious recovery. Ehler[6] also operated successfully on a patient, aged 22, for a dermoid cyst of the descending colon, which had to be dissected widely and was associated with another similar cyst at the hilum of the kidney. These two are the only other dermoids of the mesentery reported since 1907, and bring the number to not more than twenty-three, including the case herewith presented.

Dermoids, wherever found, have their origin in fetal inclusion or implantation from the ectoderm and are, therefore, congenital growths. They belong to the class of teratomata. The mesenteric forms are commonly derived as post-rectal dermoids, which may develop at any point along the infolding process. They do not usually give clinical signs until long after infantile life and are more apt to contain teeth than are dermoids in any other situation.

CASE 2.—*Sarcoma of Sigmoid Mesocolon.*—M. A. F., male, colored, aged 50, for several months had been troubled with abdominal pain and tenderness. At first his bladder was irritable; lately his rectum had been troubling him. He was sent in with a diagnosis of bladder tumor. He had lost about 30 pounds in weight.

Examination.—In appearance he was emaciated and hollow-eyed. The abdomen showed a hard nodular tumor, low down, near the mid-line, but chiefly to the left; on rectal examination it was found somewhat movable and apparently lying on the rectum. It had exactly the "feel" of a uterine fibroid in a woman.

Operation.—St. Agnes Hospital, Sept. 1, 1910: a low left rectus incision. About a pint of serous fluid was in the cavity. The large tumor (Fig. 2) was attached to the sigmoid flexure and was seen to spring from its mesentery. With some difficulty the growth was stripped off the bowel and enucleated from the mesosigmoid. The raw areas were closed with catgut. There were metastatic growths lower down, along the rectum and behind the bladder. The operation lasted twenty-five minutes.

At first the patient did well, but he became distended and vomited and, though his bowels moved and the pulse was never very rapid, he died on the fifth day. No autopsy was allowed. The pathologic report proved the tumor to be a round-cell sarcoma. It was not so soft as such growths usually are and was definitely encapsulated.

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[4] Bachmann: Inaugural Dissertation, Erlangen, 1908.

[5] Bell and Yeoman: Brit. Med. Jour., 1908, ii, 810.

[6] Ehler: Rév. de méd. techneque, Prague, 1908, i, 38.

Since 1906, when Vance[2] reviewed the literature and in addition to his own case, found seven others of mesenteric sarcoma, there have been reported two more. These were both of mixed type. König's[7] case was that of a woman, 69 years of age, with cyanosis, dyspnea, anasarca, ascites and a feeble pulse. He tapped and drew off 15 liters of fluid, locating a tumor of the shape and size of a child's head below the umbilicus. Operation revealed a tumor, partly solid and partly cystic, growing from the mesentery and loop of small intestine. Extirpation and resection of portion of bowel, with use of the Murphy button. Uneventful recovery followed. Microscopic examination showed the tumor to be a fibrosarcoma with large spindle cells. Marullaz[8] presents the case of a man, aged 65, who had noticed swelling of the abdomen for two years. It was 108 cm. in circumference; the patient's general condition was poor, but no edema or ascites was present. At operation the large growth was found adherent to the stomach and transverse colon; resection was necessary for its removal and the patient died thirty-six hours afterward. The tumor weighed over 6 kg., and turned out to be a myxosarcoma of the mesentery.

Case 3.—*Blood Tumor of Mesentery.*—J. S. F., male, aged 60, had always been healthy up to a year ago, when he began to have pain in his right side. He was treated in January, 1910, for what was thought to be appendicitis. He seemed to recover in four days and did not complain again for six months. At that time an enlargement was found in his right abdomen. He was then advised to seek surgical aid, but declined. For the past three months he had lost much flesh and strength, but had been almost free from acute pain.

Examination.—There was found in the right half of the abdomen a swelling of the size of a grapefruit, located almost on a level with the umbilicus. It was freely movable and seemed too far forward for the kidney. A mesenteric growth was the most probable condition.

Operation.—At Rex Hospital, Sept. 23, 1910: an incision in the right rectus muscle exposed the hard nodular dark-red tumor, which grew in the mesentery of the ileum. It encroached so closely on the intestinal wall and appeared so plainly malignant that a lateral anastomosis was decided on. Nine inches of the bowel were removed along with a corresponding amount of mesentery down to its root. The patient did very well until the second day, when he suddenly developed pain, vomiting and delirium without unusual distention, and died probably from gangrene of the intestine. It was impossible to make a post-mortem examination. The pathologist's report, somewhat of a surprise, was as follows: "Sections from four different portions of tumor show only young connective tissue (an organizing clot). No indication of malignancy" (Fig. 3).

This was a very difficult case. Resection was undoubtedly demanded, and yet one hardly hoped to have success with it. The large V-shaped portion of mesentery, which had to be excised, contained thrombosed blood-vessels, and they probably extended into apparently healthy areas beyond the line of division. Malignant degeneration of a preexisting growth was certainly suggested by the history. Possibly a slow-forming mesenteric thrombosis may have accounted for the condition. There is a chronic thrombosis which gives rise to a large blood tumor between the layers of the mesentery, but it is much more rare than the acute form. Codman,[9] in speaking of this condition, says: "I have not made the diagnosis in any of them, nor do I expect to in the next." According to Douglas,[1] mesenteric blood-cysts may be due to injury with non-absorption of the effusion or to hemorrhage into a preformed cyst, as observed by himself. No sort of possible history of traumatism could be elicited in the case now being considered. So, in the light of the pathologic findings, it has been put down as a blood-tumor of the mesentery, due most probably to a long-continued process of embolism and thrombosis.

Case 4.—*Round-Cell Sarcoma of Transverse Mesocolon.*—Mrs. G. W. D., 52 years old, had her menopause in 1904. In June, 1910, she began to flow again and this went on almost continually to the time of her admission on Oct. 6, 1910. Soon after the flow started, she felt an enlargement in her right side, accompanied by more or less pain. This lump continued to grow rapidly. During this time she lost weight, perhaps 20 pounds or more, and did not feel well at any time.

Examination.—A very freely movable tumor, about 8 inches long and 4 inches wide, soft in consistency, was found apparently attached near median line, below and just to the right of the umbilicus; it could be pushed into the pelvic region and might easily be mistaken for an ovarian cyst; the uterus was normal; no growth on the cervix or on the endometrium; the adnexa showed no disease.

Operation.—Oct. 7, 1910, Rex Hospital: A long median incision below the umbilicus revealed a mass rolled up in the omentum. This was tied off and the tumor brought up. It was a growth (evidently sarcoma) of the transverse mesocolon, and was shelled out without wounding the bowel or the mesenteric vessels. The bleeding was easily controlled. Hard metastatic nodules were felt in the pelvic cul-de-sac. The pathologist reported "sarcoma—round-cell type."

The patient made an easy operative recovery and went home in two weeks. Before she left the hospital, the growth was larger than it was when she came in, and she died at her home about one month later.

There was no opportunity here to do any bowel resection owing to the secondary growths and the patient's enfeebled condition. The diagnosis was evident from the rapidity of the tumor growth and the patient's malignant appearance. It was a typical mesenteric sarcoma (Fig. 4), its consistency being, as described by Bazin,[10] "neither soft nor fluctuating, but pasty; the surface not smooth but lobulated." It differed markedly from that of the second case in this series, though they were of the same cellular type. The comments made under that case will apply here.

DIAGNOSIS

One hesitates to lay down any rules whatever for the diagnosis of mesenteric tumors. It is often impossible to say beforehand that a recognizable enlargement is certainly a growth of the mesentery, and it may be well to feel contented simply with deciding in most cases that surgical intervention is or is not indicated. Exploratory diagnosis is unquestionably the easiest and surest way. A few principles for guidance, however, may be set forth, these being based on the collected experience of those who have in late years written on the subject. Douglas is the only author who gives adequate consideration to the diagnosis. I shall not here undertake a labored presentation of symptoms and signs. Rather will it be better profit to lay emphasis on those things which point to an existing tumor as being possibly mesenteric and to mention those conditions which might prevent confusion in distinguishing this growth from some other neoplasm.

Subjective symptoms, if present, are not usually distinctive. Pain, which is the most important, is not apt to be attributed to the rare condition of a mesenteric tumor, but more probably to biliary, nephritic or appendicular colic; constipation is nearly always the rule, and digestive troubles, especially nausea and vomiting, are common, but so they are in many other conditions. Intestinal occlusion, volvulus and invagination may result from the presence of the tumor and give the symptoms attending those conditions.

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[7] König: München. Med. Wchnschr., 1906, liii, 330.

[8] Marullaz: Arch. de méd. exper. et d'anat. path., 1907, xix, 263.

[9] Codman: Med. and Surg. Papers, Mass. Gen. Hosp., iii, No. 2, p. 146.

[10] Bazin: Thèse, Paris, 1907.

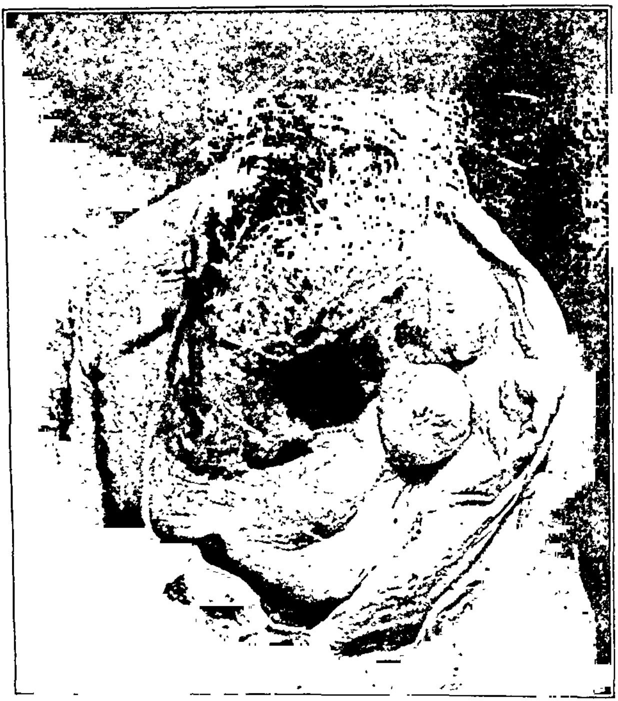

Fig. 1.—Dermoid cyst of sigmoid mesocolon.

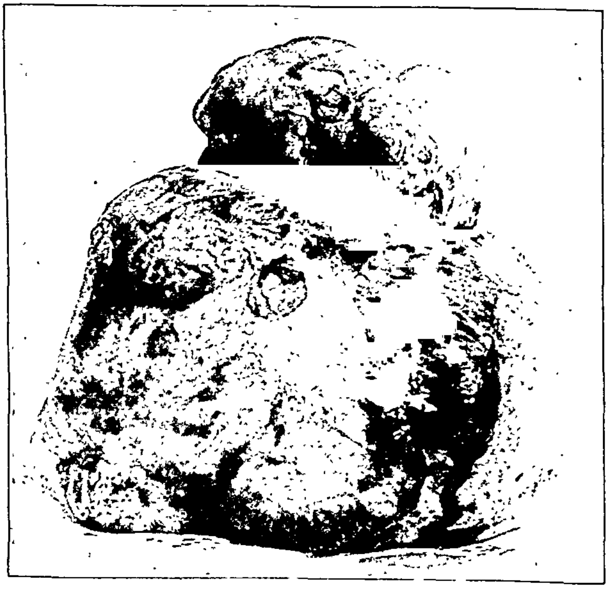

Fig. 2.—Sarcoma of sigmoid mesocolon.

The signs that most clearly give evidence of mesenteric tumors concern their position, their mobility and their relation to other organs. They are situated either in the middle line or far to either side over the course of the large bowel. Free mobility is the most important single sign, as no other abdominal tumor will show this to the same degree. The motion from side to side is especially marked. This may in a measure be diminished when the tumor is allowed to advance to a great size. If it can be determined that the tumor is separable from the solid viscera, a long step forward in the diagnosis will be made. Bazin speaks of a zone of resonance in front of or below the growth, and Douglas suggests that this may be of value in eliminating pelvic tumors, if the patient is examined in the Trendelenburg posture. König regards these as the important points: colicky pains radiating toward the umbilicus, the presence of bowel over the tumor and unusual mobility of the growth; and yet in his case none of these signs was present. Ascites is one of the common complications.

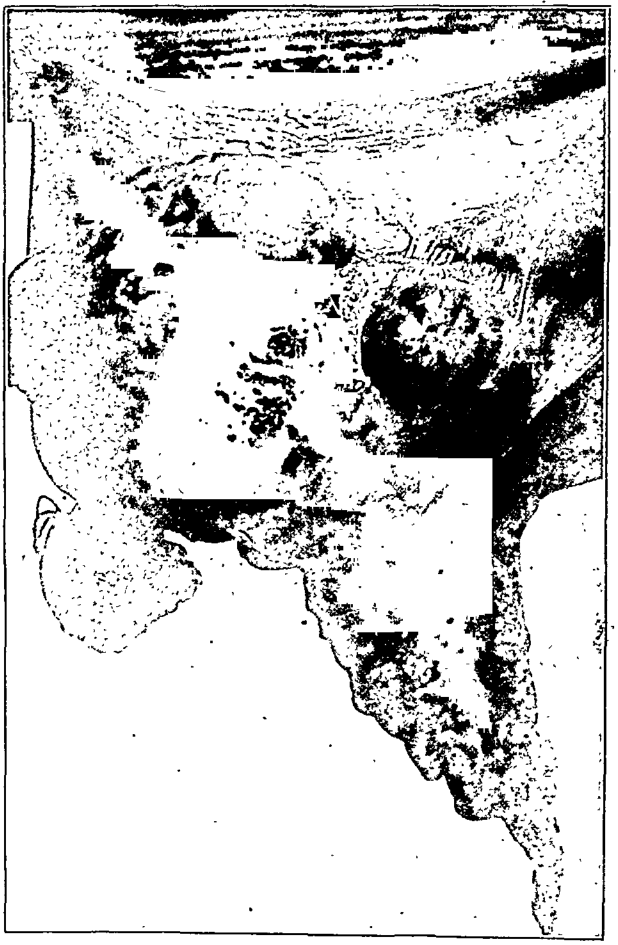

Fig. 3.—Blood tumor of mesentery.

The differential diagnosis offers a wide field of problems. Chief among these are ovarian cysts (which figured very strongly in the fourth case of my series), tumors of the liver, enlargements or displacements of the kidney, growths of the bowel itself and cysts of the pancreas. It will hardly be expedient to go over the detailed characteristics of these conditions, as they are well known. One must keep them strongly in mind, however, when differentiating abdominal growths and be prepared to learn that the diagnosis of mesenteric tumors is not a simple affair. Their very rarity is a reason for their being often overlooked. Reporting a fibromyxolipoma of the mesentery four years ago, Wiesinger[11] remarked: "In the many thousand laparotomies performed by the author for several years, this is the only case he has observed." Cysts, more than the solid tumors, are likely to furnish sources of error in diagnosis, from the areas of fluctuation usually present. These may be noted also in a lipoma when soft and of large size, as mentioned by Terrier. Bazin considers the diagnosis of sarcoma very difficult. He lays stress on "the rapidity of the growth, the cachexia and the more or less profound yellow tint of cancer." Furthermore, he seems to advise aspiratory puncture; this, he states, "will yield a cystic liquid mixed with blood, which is not the case in a lipoma owing to its lack of vascular supply." The European surgeons, as a rule, write very unconcernedly of this method, as if it were their custom to aspirate all abdominal swellings for diagnostic purposes—a practice which surely cannot be commended. Myxoma of the mesentery has been confounded with multilocular cyst of the ovary. Diagnosis must depend on excluding all possible evidence of the latter.

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[11] Weisinger: Mitt. a. d. Hamburg. Staatskrankanst., 1907, vii, 191.

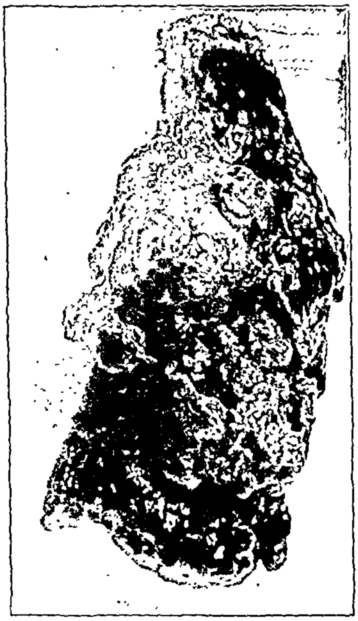

Fig. 4.—Round-cell sarcoma of transverse mesocolon.

PROGNOSIS

The outlook depends largely on the character of the growth. Danger results not only from malignancy which may be present or imminent, but also from pressure due to the large size such tumors often attain. Early recognition and prompt removal are the remedies for both of these perils. Unfortunately, late diagnosis and tardy removal have appeared to be the order of the day, and thus the mortality has been high. In 1898 Begouin collected notes of twenty-nine solid tumors of the mesentery; of the patients only fourteen survived the operation (mortality 51.7 per cent.). Writers have since stated that our results are now better; but more recent reports do not show great improvement. Vance, in 1906, found twenty-seven cases in the literature of the five years preceding and eleven of the patients died, a mortality of 40.7 per cent. Since that date, I have records of nine cases (including two dermoids) with three deaths; these, added to the four of my own, give a total of thirteen cases with six deaths, or 45.1 per cent. mortality.

OPERATIVE METHODS

In deciding on the proper procedure at the operation, one must have in mind three questions: First, is the tumor benign or malignant? Second, is it primary and isolated? Third, how much, if any, intestine is to be sacrificed in its extirpation? These points are often very difficult to determine. Since the last issue must depend on the first two, the whole matter may be resolved into a decision on the indications in any given case for resection of the bowel. The mortality percentage will be closely concerned with this decision. In Vance's twenty-seven collected operations the intestine was resected thirteen times, with seven recoveries and six deaths; three of the tumors were sarcomata and all the patients died, while of the five fibromata cases only one resulted fatally. Obviously, one should be aware of the risk when electing to perform resection. Yet Murphy removed two feet of bowel, Lexer six and a half feet, and Shepherd seven feet eight inches, all successfully, for benign growths. It must be conceded, of course, that the cases suitable for resection are those in which malignancy is evident or in which the growth by its size or situation encroaches dangerously on the bowel: both of these conditions will naturally be associated with a high death-rate. Most assuredly the danger is increased by the removal of a portion of the bowel and the time consumed in the consequent anastomosis, on account either of shock, which has been given as the cause of death in many of the operations, or of gangrene of the intestine, resulting from injury to the nutrient vessels, or of peritonitis, due to imperfect technic. We can heartily join Wiesinger, therefore, in his advice to avoid resection wherever possible, and, as a sort of corollary, to be careful not to wound the blood-vessels of the mesentery in extirpating the tumor. When that golden age shall arrive, in which the surgeon will be given early the privilege of examining and, if it seem wise, of operating on these patients promptly, then the vexatious questions which have just claimed our attention may trouble us less and less.

HAVE WE AN IDEAL OPERATION FOR INTERNAL HEMORRHOIDS?

A NEW HEMORRHOID CLAMP

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It is proper to acknowledge, by way of introduction, that no operation in surgery of equal importance has been performed as often or with as uniform success as that for the relief of internal hemorrhoids. This record is all the more remarkable when the number and indiscriminate qualifications of the operators are considered, and when the many diverse methods advocated and practiced are called to mind.

It is probably no exaggeration to say that operation by the ligature and clamp-and-cautery methods has been performed hundreds of thousands of times under every imaginable condition, with a resulting mortality so low as to be practically negligible. And the same is true of an additional large number of cases in which the long list of modified and new methods have been employed. With this phenomenal history of achievement, it would seem that there is little ground for criticism either of the standard or of the more recently devised methods of operating. And let me hasten to add that such is not the purpose of the present brief paper, except in so far as the several methods fail to conform to the accepted principles and precepts of modern surgery.

Now what are those principles and precepts as applied to the surgery of internal hemorrhoids? Among the more important are: (1) complete hemostasis, (2) immediate closure of the operative wounds, (3) preservation of the function of the parts, (4) permanency of cure, and (5) due consideration of the factors of safety, simplicity of technic, time required for recovery, and the amount of post-operative pain. Antisepsis is not included in the list for the reason that at the present time this is recognized as the indispensable requisite of all surgery.

Considering first the two older or, as they may be properly termed, standard, methods of operating, in the light of the requirements enumerated, we find that each is open to criticism on one or more counts.

The ligature operation conforms to all the principles laid down except the second; that the open wounds with the sloughing stumps and granulating surfaces resulting when this method is employed are far from ideal, cannot be gainsaid; indeed, it is one of the wonders of rectal surgery that infection and disaster do not follow this operation uniformly instead of so rarely as to be virtually unknown. In this one important respect the operation by ligature is to be strongly condemned.

The clamp-and-cautery operation meets perfectly the first four requirements, but fails to meet the fifth. As performed by the average operator it is neither so safe and simple nor so expeditious and painless as to merit unqualified endorsement. Secondary hemorrhage following this method is by no means unknown; the technic is far from simple, an elaborate apparatus and an extra assistant being always required; the operation itself consumes more time and the period of confinement is certainly not shortened; and finally the amount of post-operative pain is greater than follows any other method in common practice. It cannot be said, therefore, that the method is beyond criticism, even though the final results approach the ideal.

Of the numerous more recently devised methods, I shall only refer to the three which are probably best known and most distinctive in conception. Of the five classes of principles laid down by which to estimate the merits of the various operative procedures, the Whitehead operation conforms to only two; i. e., the second and fourth. The vitally important principles embodied in the third and fifth classes are totally disregarded, while that of the first class is practically ignored during the progress of the work itself. The enormous loss of blood incident to the performance of the Whitehead operation is a serious drawback. Scarcely less so is the ever-present danger of impairment of the function of the part by the substitution of abnormal relations or as the result of vicious cicatrization. It is also the most dangerous as well as the most complicated of all operations for internal hemorrhoids. Added to this series of disadvantages is the further consideration, which I state as a personal conviction, that it is both an unnecessary and an unjustifiable procedure. Of the many hundreds of patients operated on by me, I do not now recall a single one in whom the Whitehead technic seemed especially indicated, and I have never had occasion to regret the choice of another method.

The operation by means of Earl's clamp is in reality a modification of the Whitehead method. It is also a distinct improvement on it, in that the great loss of blood is prevented and the important advantages of comparative safety and simplicity gained. But it is open to the same indictment under class 3; namely, that it presents the practically identical danger of interference with the function of the parts.

Pennington's enucleation operation is an ingenious one, and one which has many features to commend it; but it unquestionably falls short with reference to the first-named of our arbitrary list of surgical principles. In the skilful hands of its experienced originator, the danger of hemorrhage may be and doubtless is reduced to a minimum, but in the hands of the average operator this feature of inadequate hemostasis certainly constitutes a glaring and formidable objection. It is, moreover, by no means a simple procedure either in the execution of the operative work or in the care and discrimination required in the adjustment of a proper dressing.

Now, after the foregoing iconoclastic onslaught, the question will at once be asked, does the critic know of a method more free from objections? With all becoming humility I answer, he believes he does.

The clamp and suture operation performed according to the following technic fullfils perfectly all of the conditions embodied under the five headings: A narrow clamp with tapering blades is applied to the base of the hemorrhoid to be removed in a direction parallel with the long axis of the intestine and so that its smaller, or free, extremity engages the upper, or proximal, portion of the tumor. By depressing the handle of the clamp the end of the blades where the suturing is to begin is brought into full view. A No. 1 or No. 2 chromicized cat-gut suture threaded on a round, half-curved needle is now passed beneath the tip of the clamp and securely tied on the sound mucosa above the base of the tumor. This is the most important step of the operation as, if properly executed, the blood-supply of the tumor that is being dealt with is at once effectively controlled. With scalpel or scissors the portion of the tumor outside the grasp of the clamp is amputated and a continuous suture inserted over the clamp blades, as in the Earl operation. The clamp is then gently loosened and withdrawn and the suture carefully and uniformly tightened and secured at the skin margin. Each pile tumor in turn is treated in a similar manner. If one or more of the growths is of the externo-internal variety, the clamp should be so adjusted as to include as much of the anal margin as may be indicated at each application. In order to avoid the possibility of the tissues slipping from the grasp of the clamp, it is best to amputate the overlying portion of the tumor by degrees, following the knife or scissors closely with the sutures. As a rule the sutures should be placed from 1/6 to 1/8 of an inch apart, though when the first one is properly placed, the danger of hemorrhage is largely eliminated and approximation of the edges of the mucosa is the chief purpose of the remainder.

The only dressing required is a small, well-lubricated, strip of gauze passed into the rectum, an external compress and pad and a T-badge. The operation can be performed very rapidly with a little experience, the amount of time required in a given case depending, of course, to a great extent on the number of tumors to be removed. The post-operative pain is not greater either in degree or duration than that following other methods and convalescence is fully as rapid.

This method lends itself to local as well as general anesthesia, though in the former case rapidity of operation is much more essential, particularly if multiple tumors are to be removed. Special attention to antisepsis is necessary in order to obtain the best results.

It will be observed that this method is closely analogous to the clamp-and-cautery operation, the only difference in technic being that in the former the suture instead of the cautery is relied on for hemostasis and permanent closure of the wound. That, when properly applied, it is much more dependable for these purposes cannot be denied. In addition, in my experience, it is followed by less after-pain and fewer reflex disturbances.

Considered in the abstract, I have always regarded the clamp-and-cautery method as more perfectly meeting the surgical conditions involved in the operative treatment of internal hemorrhoids than any other in general use. If, as I believe is true, the method here presented retains the advantages of the former at the same time that it overcomes in a practical way its few defects, I am prepared to say that it is the most nearly ideal of all methods yet devised.

I would have it distinctly understood that I claim neither priority nor originality for the technic here advocated. It has probably been described before, but I have not sought to ascertain by whom first, or when. My object has been rather to emphasize its value and again bring it to the attention of the workers in this field. Many times in recent years, particularly when performing operations on adjacent organs at the same time, e. g., lacerated perineum, I have resorted to it because of its obvious advantages. More lately I have been employing it frequently in simple cases, and always with complete satisfaction.

The only new feature I wish to call attention to is the clamp herewith presented, which, as will be at once recognized, is merely a modification, or rather an adaptation, of the original pattern of Earl's clamp. Formerly I used merely a pair of narrow-bladed artery forceps and, while they answered the purpose fairly well, I always recognized the need of a longer and stronger clamp of similar design. I have had occasion to use the new instrument only a few times as yet, but can unreservedly recommend it to those who may be sufficiently impressed to give the method a trial.

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EXPERIMENTAL DIRECT TRANSPLANTATION OF TENDON AND FASCIA *

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Tendon and fascia are not highly differentiated, regenerate rapidly, under favorable conditions, to repair extensive defects and require but little blood to maintain functional activity. They should, therefore, be well suited for purposes of direct transplantation. The feasibility of the direct transplantation of tendon and fascia first suggested itself to us some two years ago while repairing an extensive defect of the extensor tendons of the fingers resulting from a burn by a hot rolling iron such as is commonly used in steam laundries. The space to be bridged was so wide that it was necessary that the long tendinous flaps, which had to be used, should remain attached to the parent tendon by merely enough tissue to insure continuity. Although in this case the greater part of the tendinous flaps were independent of the parent tendon so far as nutrition is concerned, the functional result, complete extension of the fingers together and independently, was perfect.

Gluck,[1] while experimenting on the direct transplantation of muscle, was the first to demonstrate that tendons could be transplanted directly. He transplanted the gastrocnemius from one fowl to another and demonstrated that the function of the transplanted segment could be maintained. The tendo Achillis, which had been transplanted with the muscle in these experiments, had a perfectly normal gross appearance when examined. One of the transplanted tendons was examined after forty days. No histologic examination of the transplanted segments was made; at least, no mention is made of such an examination.

This experimental work never had a very extensive practical application, but few cases having been reported in which direct tendon transplantation has been attempted in man. Heuck,[2] in 1893, while repairing a defect in the long extensor of the thumb, accidentally tore off the flap from the parent tendon. The completely separated flap was sutured in position, and, notwithstanding that two pieces of the transplanted tendon sloughed out, a good result was finally obtained.

Peyrot,[3] in 1887, used a heteroplastic transplant with apparent success. In this case both flexor tendons of the left middle finger had been lost. A piece of tendon 4 cm. in length was removed from a young dog and sutured into the defect with catgut sutures. The transplant healed in position, although the cutaneous wound did not heal by primary intention. In this case the function was not completely restored, but it was greatly improved.

Monod,[4] the same year, transplanted a tendon from the hind leg of a rabbit into a defect in the flexor longus pollicis measuring 5 cm. in length. The functional result of this operation is reported as perfect, a thick, round tendon being felt at the site where the transplant was inserted. Monod was unable to state whether the transplanted segment acted as a bridge or as a true substitute for that which had been lost. Mainzer,[5] in 1902, reports two cases in which direct homotransplants were used successfully to bridge over defects while transferring tendons. In his first case, the tendon of the paralyzed peroneus tertius was used as a direct transplant to bridge a space between a flap taken from the tendo Achillis and the extensor longus digitorum. In this case the patient could extend the toes and flex the foot after thirteen weeks and could walk normally after one year. In the second case the tendon of the peroneus tertius was used as a direct transplant to unite a flap from the tendo Achillis with the extensor longus digitorum. Dorsal flexion of the foot was good after seven days. These are about the only instances in which direct transplantation of tendon has been attempted in man.

Plastic operations on tendons by means of dead foreign material such as catgut, silver wire and silk have never been used extensively in the repair of defects of the flexor and extensor tendons of the fingers, notwithstanding that the silk tendon, as employed by Lange, has yielded such brilliant results in the correction of palsies following infantile paralysis. Lange himself says,

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* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

[1] Gluck, T.: Ueber Muskel und Sehnenplastik, Arch. f. klin. Chir., 1881, xxvi, 61.

[2] Heuck: Ein Beitrag zur Sehnenplastik, Centralbl. f. Chir., 1882, No. 18, p. 289.

[3] Peyrot: Centralbl. f. Chir., 1887, No. 20.

[4] Monod: Centralbl. f. Chir., 1888, No. 51.

[5] Mainzer: Ueber indirekte Sehnenüberpflanzung, München. med. Wchnschr., 1902, No. 21.

concerning the repair of tendon defects caused by suppuration, that the infection remaining at the site where the artificial tendon is to be inserted may cause the latter to be extruded, and that even if the artificial tendon healed in position, the dense scar tissue may lead to such strong adhesions that the function of the artificial tendon may be seriously interfered with. It is in the repair of defects of the flexor and extensor tendons that a living transplant is especially desirable, although the autoplastic operation devised by von Hacker[6] some eight years ago has given results in his hands which can hardly be improved on.

Dogs were used in the experimental work which has been done by us. In one series of experiments, pieces of tendon measuring 1 or 1¼ inches were removed from the tendo Achillis of one dog and inserted into a defect of about the same length in the tendo Achillis of another dog. The legs of these animals were immobilized long enough to insure integrity of the sutures, then the cast was removed, for as will be shown later, early use of the leg in which the transplant is inserted seems to have an important effect on the viability and development of the transplant.

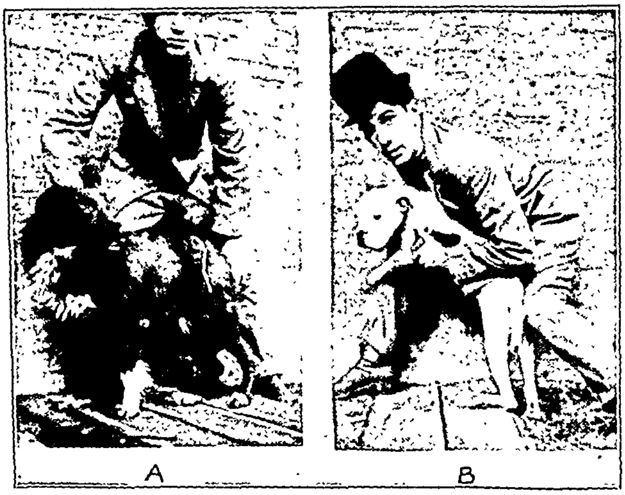

Fig. 1.—A dog from left hind leg of which a piece of tendon one and one-quarter inches in length had been removed and replaced by a piece of tendon of about the same length from another one. Picture taken four weeks after transplantation. The dog walked in two weeks after the operation, with only a slight limp. B, control dog. A piece of tendon measuring from one to one and one-quarter inches was removed and not replaced. The heel drops, resting on the board.

In another series of experiments pieces of tendon measuring 1 or 1¼ inches were removed from the tendo Achillis and inserted into a pocket in the subcutaneous fat of the abdomen. These pieces were placed in the subcutaneous fat rather than in the muscle or between the fascia, because the circulation would not be so readily established. The experiment was thus subjected to a severe test and, besides, if direct transplantation were attempted, it would be advisable to run the transplant through tunnels in the subcutaneous fat whenever possible.

In studying the fate of fascial transplants, strips of fascia lata or of the sheath of the rectus abdominis measuring ¾ inch in length and ½ inch in width were dissected loose and buried either under the subcutaneous fat or placed free on the fascial plate from which they had been separated.

TENDON EXCHANGE, THE TENDO ACHILLIS BEING TRANSFERRED FROM ONE DOG TO ANOTHER WITH EARLY USE OF THE LEG AFTER THE OPERATION

The tendon transfers were made under careful aseptic precautions, as primary wound healing is essential to success. The pieces of tendon were traumatized as little as possible and protected from drying during the process of transplantation. In order to insure early use of the leg, without danger of separating the transplant from the muscle and tendon to which it had been sutured, rather heavy iodin catgut or Pagenstecher's linen were used and accurate approximation of the ends secured. It is important that the leg carrying the transplant be used early. Some dogs, in which a piece of tendon had been removed and not replaced, were used as controls. These animals always walked with a drop foot, there being no restoration of function. In one control dog, the defect remaining after removal of the tendon was filled in by new tissue. This differed markedly, however, from the transplant, and although there was in this case what might be called an anatomical restoration of the tendon, there was no return of function. This tissue was present forty-five days after the segment had been removed.

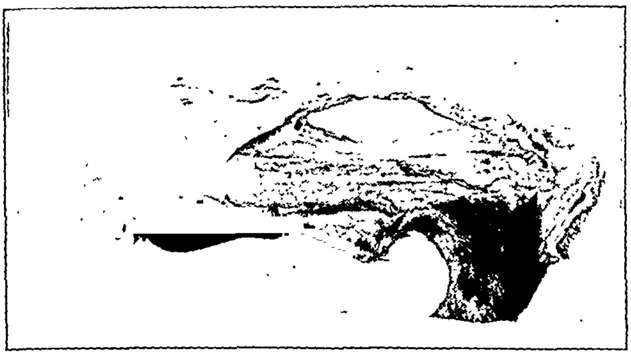

Fig. 2.—Appearance of tendon three weeks after transplantation. The transplanted tendon is larger than the normal one on the opposite side. It is fusiform in shape and does not taper down to its insertion as the normal tendon does. The line of suture can no longer be made out.

The transplanted tendons were examined after seven, seventeen, twenty-one, thirty-five and fifty-nine days. In these cases a round, resistant, somewhat enlarged tendon could be felt beneath the skin under which it moved quite freely. In some of our cases, the transplant underwent regressive changes as the result of infection or of undue tension on the segment. In these the transplant became soft and pulpified and imparted to the palpating finger a much different sensation than that imparted by the living transplant. In all of the successful cases, the dog could use the leg at the end of a week, and at the end of fourteen or fifteen days, the animal could walk without much of a limp or any dropping of the foot.

We will not give a minute description of the changes occurring in each case, but will mention those which we consider to be most characteristic.

Some of the most important changes relate to the size and form of the transplant. At the end of seven days the transplanted segment, which has not increased much in size, lies in a mantle of grayish red embryonal tissue which is usually separated from the transplant proper by a thin layer of plasma. At the end of seventeen days the transplant shows some enlargement, and the mantle of granulation tissue which surrounds it has formed a rather intimate union with the transplanted tissue. At the end of three weeks, the tendon transplant is from two to three times thicker than the normal tendon on the opposite side. In the tendo Achillis of the dog there are three separate tendon bundles, each surrounded by a synovial sheath. In the transplanted tendon these three bundles become united so that they can no longer be isolated, this union being due apparently to proliferative changes in the peritendineum.

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[6] Von Hacker: Ueber den autoplastischen Ersatz der Streck und der Beugesehnen durch entbehrliche Sehnen des Handrückens, Beitr. z. klin. Chir., 1910, lxvi, 259.

This change in size has been noted by both Kirschner[7] and Rehn[8] in their experimental work dealing with transplantations of tendon. In describing a tendon examined thirty-three days after transplantation, Kirschner remarks that the exposed tendon appears as a rounded cord which is about twice as thick as the normal tendon on the opposite side, and that it is so sharply delimited from the surrounding tissues that there is no doubt as to the exact limits of the transplanted tendon. Rehn says, in describing one of his specimens removed after seven weeks, that the transplanted segment is about three times as thick as the tendon on the opposite side.

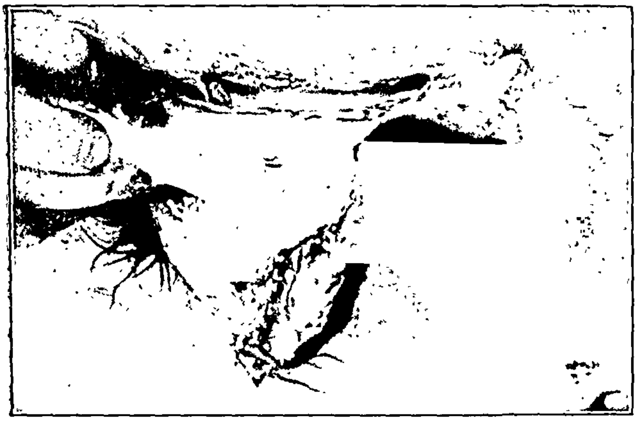
Fig. 3.—Appearance of tendon fifty-nine days after transplantation. The tendon resembles quite closely a normal one. It is still somewhat larger than the normal one on the opposite side, but it approaches the normal closely in shape, tapering down to its point of attachment, being no longer fusiform.

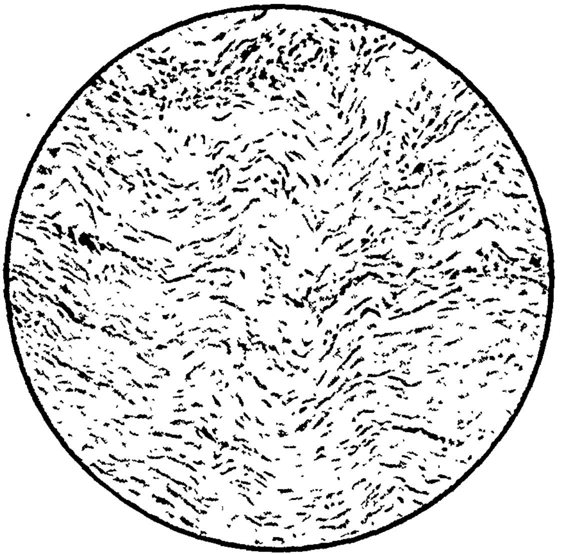
Fig. 4.—Longitudinal section through a tendon three weeks after transplantation. The fibrillæ and nuclei stain well and appear practically normal. There are some proliferative changes in the peritendineum.

The tendon transplants become fusiform in shape and do not taper down to their point of attachment as does the normal tendo Achillis. The center of the transplant is usually the widest part, there being a gradual reduction in size on either side of the middle of the transplant down to the suture line.

The changes in size and shape of the transplants are due, we believe, to two things: (1) proliferative changes in the subcutaneous tissue surrounding the transplanted tendon and in the peritendineum externum and internum; (2) edema of the transplant, resulting from an imperfect reestablishment of the circulation.

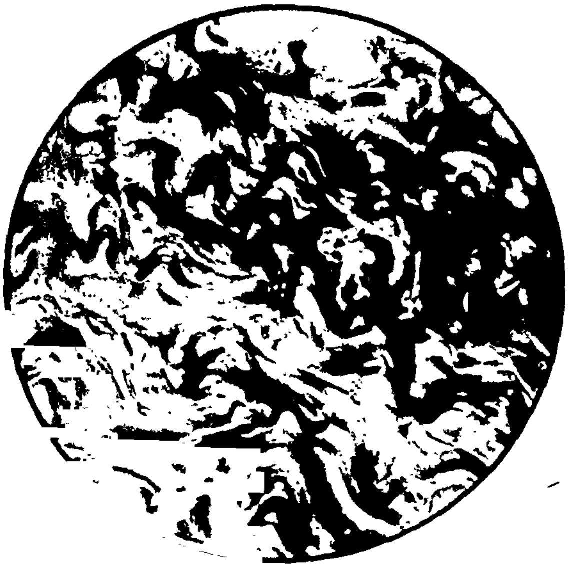
Fig. 5.—Section parallel to long axis of tendon five weeks after transplantation, showing swollen curled fibers of transplant.

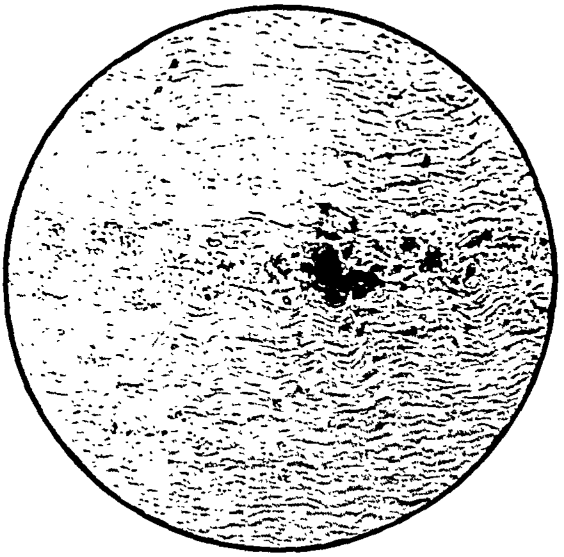
Fig. 6.—Longitudinal section through tendon fifty-nine days after transplantation. Tendon practically normal.

As regards the proliferative changes in the peritendineum externum and internum, our findings are in accord with those of Rehn. He states that, during the first three weeks after transplantation, proliferative changes in the peritendineum are the most prominent of

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[7] Kirschner, M.: Ueber freie Sehnen- und Fascientransplantation, Beitr. z. klin. Chir., 1909, lxv, 472.

[8] Rehn, E.: Die homoplastische Sehnentransplantation im Tierexperiment, Beitr. z. klin. Chir., 1910, lxviii, 417.

any occurring in the transplanted tendon, and that by the twenty-first day the peritendineum externum has proliferated to form a thick mantle of newly formed tendon tissue which surrounds the transplanted segment and supplies the latter by numerous capillaries which develop from it with nutrition.

The mantle of tissue which we have observed is developed partly from the peritendineum externum and partly from the subcutaneous tissues which form the bed for the transplanted segment. This mantle of tissue is rich in blood-supply, and undoubtedly furnishes the greater part of the nutrition for the transplanted tendon. When the proliferative changes in the transplant are most marked, the mantle of proliferating tissue and the transplanted segment are closely united.

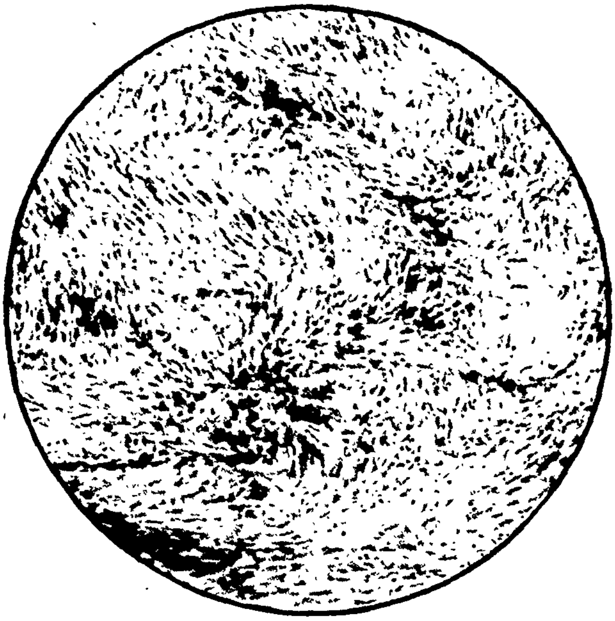

Fig. 7.—Cross-section through piece of tendon transplanted into the subcutaneous fat and removed after five weeks. Piece of tendon reduced considerably in size. There is considerable leukocytic infiltration in certain areas. Neither the fibrillæ nor the peritendineum show an evidence of proliferative changes.

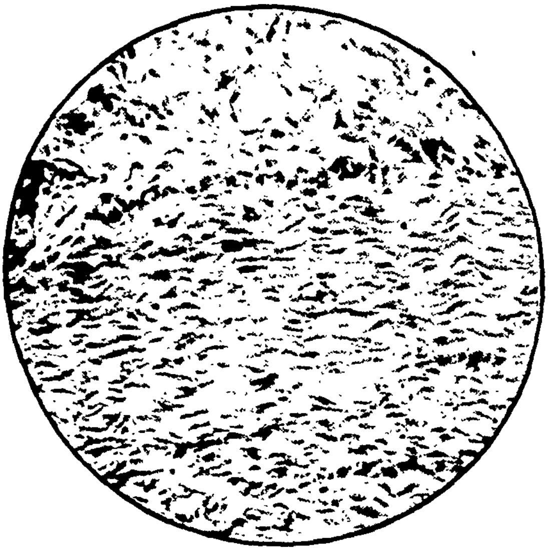

Fig. 8.—Fascial transplant removed after fourteen days. The transplanted tissue preserves all of the characteristics of normal fascia.

CHANGES IN SIZE OF THE FIBRILLÆ AND EDEMA OF THE TRANSPLANT

In the transplanted tendons, after three and five weeks, the fibrillæ seem to be larger than normal, and many seem to be gnarled and twisted, the bundles of fibrillæ often being separated by a granular mass. Although these changes are most marked in the three and five weeks old transplants, they are also observed as late as fifty-nine days after the tendons have been exchanged.

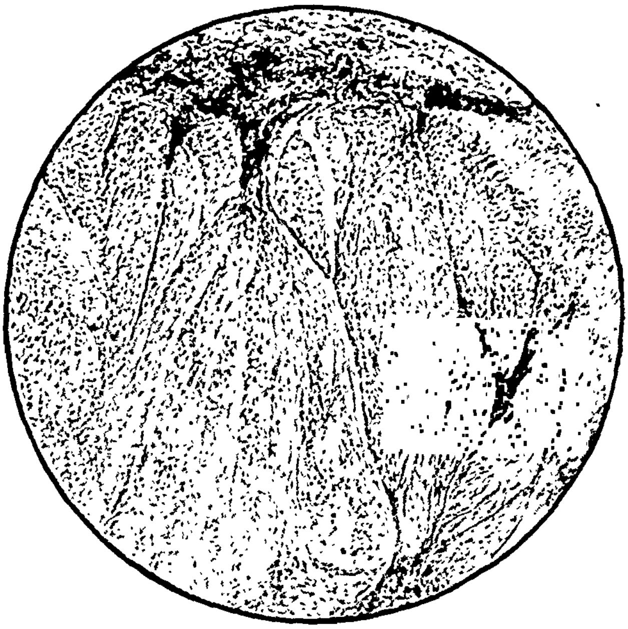

Fig. 9.—Cross-section of a piece of fascia from the rectus abdominis transplanted into the subcutaneous fat of the abdomen and removed twenty-three days later.

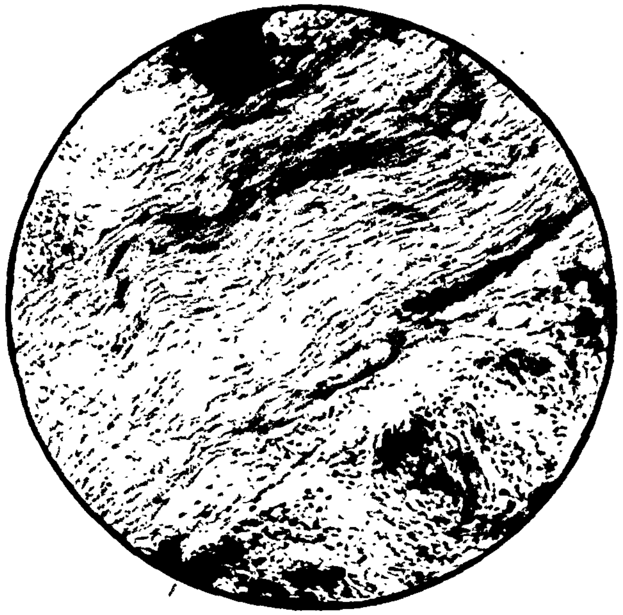

Fig. 10.—Longitudinal section of a piece of fascia removed from the rectus abdominis and transplanted into a subcutaneous pocket in the abdominal wall. Fascia examined thirty-five days after transplantation.

These changes we believe to be due to an edema of the transplanted segment resulting from an imperfect reestablishment of the circulation. They are not of a regressive character, for both the fibrillæ and the nuclei react normally to stains. This edema may account in part for changes in the size of the transplant.

While in all the transplants there are evidences of regressive changes in small areas, the fibrillæ having undergone hyaline changes or appearing granular, the transplant as a whole remains alive, not being invaded by either leukocytes or round cells. A transplant, examined after fifty-nine days, has practically the appearance of normal tendon and moves readily beneath the skin. The cell mantle has been greatly reduced in size, and the cut surface has a white glistening appearance. But even in cases in which the transplanted segment resembles so closely normal tendon, the three bundles normally found in *the tendo Achillis* have fused so that they can no longer be isolated, and the tendon is larger than the normal one on the opposite side.

The dog from which the tendon was removed for purposes of examination fifty-nine days after operation had been walking for five weeks with practically no limp and without any dropping of the foot, the transplanted tendon having restored completely the function of the leg. In our control animals, in which the segment removed was not replaced, there was never a restoration of function, although, in one case, after forty-five days, there was partial anatomic repair.

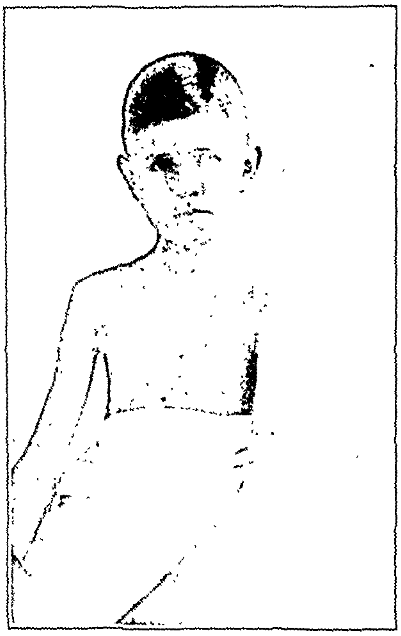

Fig. 11.—Deltoid paralysis of five years' standing following anterior poliomyelitis.

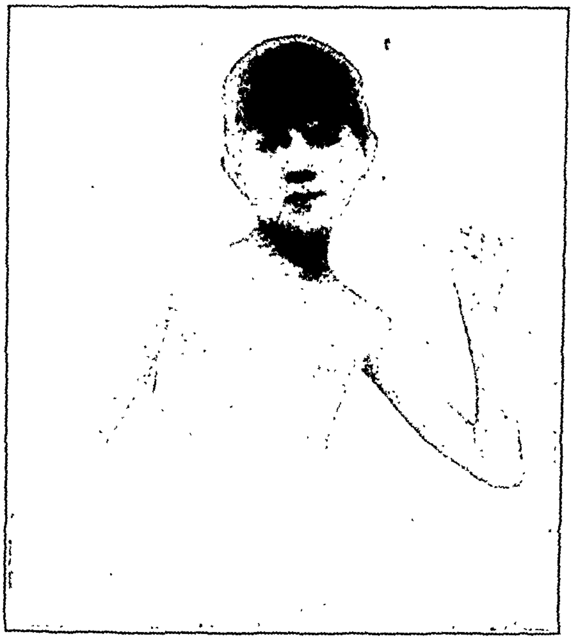

Fig. 12.—Ability to abduct the arm and maintain abduction after trapezius transplantation in patient shown in Figure 11. In this case it was impossible to suture the trapezius as low down on the humerus as desired. A piece of fascia lata was therefore transplanted directly between the trapezius, which had been freed, and the deltoid insertion to act as the tendon of the trapezius muscle.

The staining reactions of the nuclei and fibrillæ of the transplanted segment, the absence of leukocytic and round-cell infiltration, and the absence of any great number of karyokinetic figures, indicate that the transplanted segment acts as a true, viable substitute for the part which has been removed and not as a bridge for developing tenoblasts.

TRANSPLANTATION OF PIECES OF TENDON INTO THE SUBCUTANEOUS FAT OF THE ABDOMINAL WALL

In our second series of experiments, pieces of the tendo Achillis, measuring 1 or 1¼ inches in length, were placed in pockets made in the subcutaneous fat of the abdominal wall. The transplanted pieces were not united by suture to any of the surrounding tissues. They were removed for examination after seven, sixteen, twenty-three, twenty-eight, and thirty-five days. The changes observed in these transplanted tendons differ markedly from those described above, as occurring in tendinous transplants, which assume the function of the segment for which they have been substituted.

There is a tendency for pieces of tendon transplanted into the subcutaneous fat of the abdomen to become progressively smaller. Pieces of tendon, which measured 1 or 1¼ inches when transplanted, were only one-third as long or less when examined five weeks later. Although in this case the transplanted tissue had all of the physical properties of tendon and could easily be identified as such, there were no evidences of any proliferative changes such as occur in transplants which assume the function of the tendon for which they have been substituted. In a tendon removed four weeks after transplantation, the three bundles occurring in the normal tendo Achillis could still be isolated, surrounded by its synovial sheath. After transplantation into the subcutaneous fat, the tendon shrinks to form, in those cases examined some time after the operation, a small ball of tendinous material. These transplanted pieces form with the subcutaneous fat close adhesions, but the line between the tendon and fat is sharply demarcated.

Microscopic examination shows that the fibrillæ and nuclei stain well and that the piece of transplanted tendon may be regarded as viable. There is some leukocytic and round-cell infiltration. The most striking difference between transplants which have assumed early the functions of the segment for which substituted and those which have been placed into the subcutaneous pockets without assuming function, is the absence of any proliferative changes in the peritendineum, of the latter. The peritendineum of pieces of tendon transplanted into the abdominal wall is perfectly passive, there being no effort to form a cell mantle. Apparently there is also no edema of such a transplant. Such a transplant may be compared to a paralyzed limb. It has circulation and is viable, but becomes shrunken and differs in many ways from a transplant which has assumed the function of the tendon for which it has been substituted. Some of these differences may be accounted for by the early establishment of circulation from the end of the muscle, in those cases in which the tendon has been substituted, for a tendon which has been removed. Transplanted tendons which assume function early, do much better than those which are immobilized for long periods of time, both regarding the viability of the transplanted segment and the freedom with which they move beneath the skin. Sutures, such as those recommended by Dreyer or Fritsch, which do not strangulate the tissue, but still insure a union so firm that the tissues cannot be separated by movements begun shortly after the operation, should be employed.

TRANSPLANTATION OF FASCIA

Kirschner, while experimenting on the direct transplantation of tendons, was the first to suggest that fascia might be used to repair defects in tendons. In discussing the possibility of fascial transplantation, he remarks that we have in fascia, especially in the fascia lata with its strong iliotibial band, a tissue which can be easily used in bands of practically any length or breadth, and in almost unlimited amounts without interfering with the function of the structure from which it is removed. These strips may be used either in the form of narrow strips or sewn into the form of a tube uniting the ends of the tendon which is to be repaired.

In determining the viability of fascia, we have transplanted into the subcutaneous fat of the abdomen or under the skin of the thigh either pieces of the fascia lata or of the sheath of the rectus abdominis. The pieces which were transplanted measured ¾ of an inch in length and ½ an inch in breadth. These transplanted pieces of fascia were examined after four, ten, fourteen, twenty-three and thirty-five days. Transplanted pieces of fascia, when not sutured in position, curl up and become smaller than when first separated from the fascial band or aponeurosis. The changes in form and size of the transplanted pieces apparently depend on the direction of the tension planes of the fibers in the piece transplanted. In these experiments the transplanted fascia was not sutured in position, because we desired to subject the transplanted tissue to a severe test, and a line of suture would favor the early development of circulation in the transplanted fascia. As the transplanted fascia curls up, it is necessary to cut the transplanted tissue somewhat larger than the defect to be covered, in order to insure against undue tension.

The fascia examined four days after transplantation was removed from the sheath of the rectus abdominis and placed in the subcutaneous fat of the abdominal wall. After four days, when the dog was killed, the transplant preserved all the characteristics of fascia. It had become somewhat reduced in size, because it was somewhat curled on itself. The fascia had contracted slight adhesions with the subcutaneous fat, but could be moved easily under it. On histologic examination the fibers of the fascia reacted normally to stains. A layer of leukocytes with some round cells surrounds the transplanted tissue, but has not invaded it.

The fascia examined ten days after transplantation was a piece of about the same diameter as that mentioned above. It was removed from the fascia lata and placed on the same fascia at a lower point without suturing. When examined after ten days, the transplanted piece was adherent to the fascia lata by a thin layer of granulation tissue and fibrin. It had all of the characteristics and microscopic features of normal fascia.

Figures 8, 9 and 10 indicate the condition of transplanted pieces of fascia after fourteen, twenty-five and thirty-five days. In Figure 8 the transplanted fascia has been cut parallel to the long axis of its fibers. The subcutaneous fat is adherent to the transplanted tissue, but there is very little reaction about the fascia, but few leukocytes and round cells, none of which have invaded the transplant, being found. Figure 9 represents a cross-section through a piece of fascia examined twenty-three days after transplantation. The fibers of the fascia which are cut transversely stain normally. There is considerable leukocytic and round-cell infiltration in this case at the margins of the transplanted fascia. There has been, however, but little invasion of the transplanted tissue, and this has occurred about the septa separating the different bundles composing the fascia.

After thirty-five days the transplanted fascia has contracted firm adhesions with the subcutaneous fat and has been considerably reduced in size. The piece transplanted still preserves all the physical characteristics of fascia, although it is considerably more resistant than at the time of transplantation. The fibrillæ of the transplanted fascia react normally to stains, preserve their wavy characteristics and are not invaded by leukocytes or round cells. This piece of fascia, thirty-five days after transplantation, although it is somewhat reduced in size, is viable and could be used as a substitute for tendons when repairing defects in the latter.

Fascial grafts have been used in a few instances to transplant a muscle to a new insertion or to correct a deformity, such as a drop shoulder resulting from paralysis of the spinal accessory nerve. Payr, mentioned by Kirschner,[9] has used a piece of fascia lata to correct a congenital ptosis in a boy 12 years of age, after an unsuccessful attempt with the silk-strand method. At the second operation, the scar remaining from the first operation and the silk tendon were removed. A piece of fascia lata measuring 2 cm. in width and 10 cm. in length was then removed and sutured below to the tarsus and above to the frontal muscle, enough tension being maintained to elevate the lid. Another transverse incision was then made, two fingers' breadths above the original wound, and after the skin was undermined the fascia was again sutured to the frontal muscle. The result was almost perfect, as after the operation the opening and closing of the lids is the same on both sides. Rothschild[10] has transplanted with success a piece of fascia lata to correct a functional disturbance, due to paralysis of the trapezius muscle. In this case a piece of fascia lata 20 cm. long and 4 to 5 cm. broad was sutured to the vertebral border of the scapula and to the supraspinous ligament, thus correcting the drop shoulder.

We have transplanted pieces of fascia lata into the hand, when attempting to restore anatomic conditions destroyed as the result of a burn or injury. In the two cases in which we have transplanted fascia into the palm, the grafts have apparently healed for they have not been extruded.

Recently, while transplanting the trapezius to correct a deltoid paralysis of five years' standing in a patient kindly referred by Dr. J. L. Porter of Chicago, we were unable to use the cleido-occipital portion of the trapezius because it was involved in the paralysis. The acromial and spinous portions of the trapezius were then freed, but we could not suture them as low down on the humerus as we desired. A piece of fascia lata measuring 3 inches in length and 1½ inches in breadth was then removed and sutured into the trapezius above and into the deltoid tendon at its points of insertion below. A thin layer of fat was removed with the fascia. The fat was placed next to the shoulder-joint and the neighboring tissues, in order that the transplanted fascia would not adhere to the subjacent structures. In this case a portion of the pectoralis major muscle was freed and attached to the humerus above the deltoid insertion, with the idea that this muscle might aid in bringing the arm upward and forward. The paralyzed deltoid muscle was then imbricated over the fascial transplant being sutured to the trapezius muscle. The wound healed by primary union.

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[9] Kirschner: Die pr[illegible] freien Fascientransplantation, Arch. f. k[illegible]

[10] Rothschild: Ueber [illegible] der Cucularis-Lähmung mittels freier [illegible] f. Chir., 1910, No. 45, p. 1441.

Seven weeks after the operation, the patient could abduct the arm to 70 degrees, and could maintain it in this position for some length of time.

The success accompanying the few cases in which fascia lata has been transplanted directly to form tendons, warrants a more extensive use of it for this purpose, for it has considerable resistance, its elasticity is greater than that of tendon, and its thinness practically guarantees the nutrition of the piece transplanted. We are indebted to Dr. E. Kirk and Dr. A. M. Moody for the preparation of the sections from which the accompanying photo-micrographs were made.

ABSTRACT OF DISCUSSION

DR. LEONARD W. ELY, Denver: Rehn seems to have gone furthest in this line heretofore, but his work is characterized largely by scolding and by credulity. As I understand it, he implanted a piece of tendo Achillis in the walls of the abdomen, and because one layer was better developed than another, he deduced that motion was necessary.

He believed the story of some civil engineers who had been in China and had heard of this reparative tendon work there. There are many branches of scientific knowledge which seem to be so limited in application that we wonder where their particular value will come in, and I had been inclined to look at this tendon and fascia transplantation more as an interesting abstract study than anything else. Rehberg is reported in the *Berliner Klinische Wochenschrift* as having trephined for traumatic epilepsy, removed the thickened dura and transplanted fascia lata in its place, with great success. No praise for such work as this of Dr. Lewis' can be too high.

DR. KENNETH A. J. MACKENZIE, Portland, Ore.: I think we are all agreed that so far as treatment of traumatisms which have led to the creation of big gaps in tendons the problem is solved by this procedure. I notice that in the abstract of this paper reference is made to the use of tendons to fill gaps created by trauma in the case of nerves, although I do not think that Dr. Lewis made any reference to this in his paper.

It would seem to me that the fact that has been well brought out, that when the tendon is implanted remotely in the tissues no cellular infiltration takes place in the graft and no histologic changes except apparently normal changes, would lead fairly to the conclusion that the tendon might be very useful as a conduit for nerve flaps or grafts, the tendon being used as a container or carrier. I should like to have heard some reference in the paper as to what has been done with the tendon in this connection. Those who are confronted with cases in which nerves have been destroyed over long stretches will find a good deal of comfort in the fact that even in the case of very large gaps in nerves, bridging may be done by the use of very long flaps when properly protected.

In a case that I reported two years ago the sciatic nerve was the seat of malignant tumor, and the entire trunk of the sciatic was resected. Flaps from the popliteal branches were lifted up at different times two weeks apart; these flaps were 19 inches in length, the gap in the sciatic being 12 or 13 inches in length. The ends of these flaps were brought up to the truncated end of the sciatic at the lower point of section, one popliteal end was anastomosed into the other and the slender flaps bridging the gaps were sutured into the sciatic trunk above, the grafts being placed in separate muscular beds by suture. At the end of eighteen months the functional results were so satisfactory that the man could walk and work as well as formerly without aid to locomotion, although, of course, there was a permanent and extensive impairment of the sciatic sensory area.

DR. JOSEPH KURTZ, Los Angeles: Since 1903 I have practiced rather extensively tendon transplantations. In 1903 I had the pleasure of being in Europe with Lange of München and Wolfius of Heidelberg, the two men who did more for tendon transplantation than all the rest of the surgical world. The art of transplantation, if I may say so, has long since passed its experimental stage; it is as perfect as an amputation or a laparotomy. We know now perfectly well what we can do. We take a healthy tendon and transplant that into a weak tendon, or part of a healthy muscle into a muscle that is weakened either from paralysis or injury and fortify it.

The tendon or muscle which is fortified by transplantation of healthy tissue, becomes practically healthy normal muscle or tendon. The change in the tonicity of the tendons is remarkable. You know that a diseased tendon is flabby; it has lost its luster, its ivory shine, and as soon as you have implanted a healthy or part of a healthy tendon into such a diseased tendon, you can notice after three or four weeks, if you should get the opportunity to see it, that this fortified, originally diseased tendon looks just as bright as the one that has been implanted into it.

Now the greatest use of tendon transplantation is made in those conditions which are left after cases of anterior poliomyelitis. How long is it since we have really considered that a paralytic club-foot is curable? I do not believe it is more than five years. We can transplant the adductors into the abductors, or *vice versa;* the flexors into the extensors, or *vice versa*, in club-foot; and we can do the same thing with the arm, as has been explained, with perfect results as to function. Within one month the function, if not perfect, is at least good. Within a year, I venture to say, after operation, the functions in the originally diseased tendons become as good as in any of the other tendons.

DR. DEAN D. LEWIS, Chicago: In the abstract we referred to the use of fascia in the form of a tube, which might be used in the repair of nerve defects; the ends of the fascial tube being sutured over the ends of the nerve, thus forming a tunnel of living tissue through which the regenerating nerve fibers could pass.

I admit that the method of tendon transplantation or transfer which Dr. Kurtz was discussing is not in an experimental stage. The work of Vulpius and Lange has shown this. Lange's periosteal silk strand method is an accepted and most valuable procedure in treating paralysis following poliomyelitis. But in traumatic cases or the results of sloughing of infected tendons, bad results may follow the use of the artificial silk tendon. Lange himself says in a recent article that in these cases the silk tendon may be contra-indicated and that the method of direct fascial transplantation may be the one of choice.

Graves' Disease at the Age of 10.—The case of J. W. H., boy, aged 11, who exhibited undue prominence of the eyes at the age of 10, is reported by W. Essex Wynter (*Proc. Roy. Soc. Med.*, June, 1911). When admitted to Middlesex Hospital in March, 1911, there was obvious proptosis, with all the usual signs. The thyroid gland was enlarged, both isthmus and lobes; the fingers when extended, exhibited fine tremor; the skin was moist and flushed and about the hands and neck showed yellowish pigmentation. There were no cramps, but the patient had faint attacks, flushes and occasionally showed some temporary puffiness of the face. There was incontinence of urine; the urine was clear, amber-colored, acid, specific gravity 1,015 and contained a trace of albumin. The pulse ranged from 92 to 124.

THE INFLUENCE OF CLIMATE ON MIDDLE-EAR DISEASES AND THEIR PREDISPOSING CAUSES *

JAMES J. PATTEE, M.D.
PUEBLO, COLO.

The intimate relationship between diseases of the middle ear and abnormal conditions in the nose and throat has furnished a theme rich in interest for the otologist on the one hand, and no less attractive to the rhinologist on the other. Both have studied this relationship, which has strengthened as the work has progressed. The former arbitrary separation of diseases of these organs having been outgrown, there has arisen between them a mutual dependence, of which reports of modern progress are full and convincing. That the nose is the seat of numerous predisposing causes of middle-ear diseases is generally admitted to-day, whereas a few years ago no such relationship was dreamed of. In the symposium under discussion, a consideration of climate which lost sight of the interdependence of affections of these mutually related organs would entirely fail in its comprehensiveness.

Permit me, at the very outset, to make it plain that I am not dealing with climatic treatment of middle-ear disease. Climatic treatment, *per se,* like any other treatment *per se,* would fail to meet adequately all of the indications of any class of cases. The direct influence of climate alone on established middle-ear disease is very slight, whereas the indirect influence on the predisposing causes is considerable. As the majority of middle-ear diseases are secondary, so climatic influence is greatest indirectly. It is not my aim to underrate the importance of the surgical treatment of predisposing conditions in the nose and throat. On the contrary, I accept them all, if indicated. Neither is it intended to minimize the merit of constitutional or local treatment. I wish merely to present briefly a few such observations and opinions as will emphasize the importance of climate from a prophylactic and therapeutic standpoint. From a mere viewpoint of definite cure of chronic cases of middle-ear disease, climatic influence seems not to take a high place, since few patients are cured by it alone, compared with cures obtained from other lines of treatment. It seems to me, however, that reports of cures of these convey an inadequate idea of the influence of climate on conditions admittedly predisposing to middle-ear disease.

That there is enormous worth in intranasal surgery, removal of tonsils, adenectomies, etc., is not denied, but when it is remembered that complete obstructions in both nostrils may continue for some time without affecting the hearing; that the pernicious furor to attack every irregularity within the nose has led to a large amount of unwarranted operating in the nose and throat; that intranasal operations have frequently been done on patients whose conducting apparatus had already been injured by pathologic processes; that adenoid operations have often failed to ameliorate the symptoms for which they were performed; that we can have middle-ear inflammation and suppuration without enlarged tonsils and adenoids; when we recall facts like these, we can begin to rate, at something like their true value, other lines of treatment and question whether surgical operations are always of the transcendent importance assumed.

While it is impossible, in the brief time at my disposal, for me to take up a discussion of climate in general, I may enumerate a few of the characteristics of the climate, altitude and environments of Colorado, New Mexico and Arizona and the influence they produce on the body, and leave to your judgment the effect of opposite conditions. This portion of the Rocky Mountains has a moderate temperature and a decidedly dry atmosphere. It varies in altitude from 4,000 to 9,000 feet with numerous mountain peaks from 10,000 to 14,000 feet, the temperature varying with the altitude. My personal observations are drawn from a residence of five years in western New Mexico, very near the Arizona line, at an elevation of 6,000 feet, and seven years in southeastern Colorado at an elevation of 4,700 feet, both of which might be classed as moderately high elevations. The air is dry, having a low degree of absolute and relative humidity. It is pleasant, tonic and stimulating, with a minimum of those properties that depress and debilitate. There is a maximum of sunshine and the sun's rays are intense. The atmosphere contains few impurities. Owing to good natural drainage, the desiccating action of the atmosphere, and the rarefaction of the air and intense solar heat, the soil dries rapidly, and bacterial activity and multiplication are strongly inhibited. Solly, in his admirable textbook on climates, states that "the air is aseptic and antiseptic." A verification of this statement is found in the manner in which the Mexican preserves his beef and mutton. Pieces of meat are strung on a line and dried in the sun as we dry laundry. His *carne* receives no other treatment for its preservation. Animals die and decompose on the plains, producing but slight odor. The offensive malodorous, nauseating breath of atrophic rhinitis loses much of its unpleasantness. The properties of the atmosphere and sun that cause these conditions, inhibit the action of bacterial infections of the nose, throat and upper respiratory tract, as well as infections in general, and hence indirectly favor the integrity of the ear.

Dr. W. Freudenthal[1] has said, regarding the evil effects of dry, foul, overheated living-room air as a cause of nasopharyngitis:

> If we compare our mode of living with that of a hundred or two hundred years ago, we must confess that we have returned to a very ancient style of living. We have become, *mutatis mutandis,* actually cave-dwellers again. In a ten by fifteen room the average human being passes twenty-three of the twenty-four hours of the day, or even more. The room is nothing but a cave-dwelling, with the exception that it is tightly closed from all sides during the greater part of the year. It makes little difference whether we call this cave a sitting-room in a fashionable house, or whether we term it a sweat-shop. The difference is only in degree. The room is, as a rule, tightly closed against the invasion of fresh air.

Although some of us of the dry and sunny Southwest may not ventilate as we should, most of us live in strong contrast to the conditions above quoted. The pure air, the stimulating breezes, the few mists, fogs and clouds and the great number of sunny days are constantly inviting people into the open and even lead them to sleep out of doors, both summer and winter. The sleeping-porch and the tent-house, which originated here, have done so much for the prevention and cure of nasal, throat and respiratory affections that their service is no longer limited to this region.

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* Read in the Section on Laryngology, Otology and Rhinology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

[1] Freudenthal, W.: Some Hints on the Treatment of Chronic Nasopharyngeal Catarrh, William Wood & Co.

That the inhabitants of the region under discussion do have colds is not denied, but I have repeatedly been told by patients that their "habit of catching cold" in the East had left them since coming here. This is particularly true of those who sleep on porches or within tents. Fortunately for our people, the umbrella, rubber overshoes, raincoats, etc., which pamper our bodies and act on our *pars minoris resistentiæ,* are rarely used. When we remember that dirty streets, foul air, acrid vapors, overheated rooms, cloudy weather, and wet walks and soil are at a minimum, and that there is a maximum of bright clear days, a pure atmosphere and a dry soil, we can appreciate that in this locality many of the conditions predisposing to colds and indirectly to middle-ear disease, are wanting.

The atmospheric properties are stimulating to the respiratory, circulatory and nervous systems. The vasomotor nerves are, therefore, generally in a healthy state and hence the body resists taking cold. There are two theories regarding the etiology of cold: one, that the cause is an infection; the other, that there is a vasomotor change consequent to exposure, environment, etc. Whether one inclines to the former or to the latter view, I am certain of the fact, based on practical observation as well as on theoretical considerations, that acute colds and acute inflammatory conditions of the nose, throat and ear prevail here with considerable less than average frequency.

Adenoids have been attributed to nearly everything. Although there is much lack of uniformity of opinion on the multitudinous causes generally set forth, I believe that the majority of observers are in accord with the theory that frequent colds, damp, cold, cloudy, changeable weather and badly ventilated, overcrowded rooms increase the percentage of these vegetations. Granting that this is true, it follows that our climate, habits of life and environment naturally mitigate the harmful influence of these causative factors.

Nasal obstructions are of two varieties, hard and soft. The hard variety includes pathologic conditions in the osseous and cartilaginous structures. Except in cases of very moderate degree, they require surgical correction. Climate, unaided by other accepted methods of treatment, could have no trustworthy effect on the real condition in bad cases, although it might change the symptoms considerably, and, I am sure, if judiciously selected, it would improve accompanying conditions, increase the patient's comfort and enhance the postoperative results.

On various occasions, I have left my practice for a course of study in, or visit to, some of the cities of low elevation and damp climates. I have been strongly impressed with the fact that soft tissue obstructions are much less general and are of a milder grade in a dry than in a humid climate. Acute purulent rhinitis in children almost never exists, and acute obstructive conditions of the soft parts are much less severe. The red, swollen, boggy, discharging condition of the mucous membrane and underlying spongy tissue occurs much less frequently in the child, and there is a corresponding decrease of chronic enlargements with accompanying stenosis in the adult.

The lamented Dr. Solly first called our attention to the shrinkage of the mucous membrane and the underlying vascular and glandular tissue with coexisting decrease of nasal discharge. These facts have been impressed on me in clinics and in case histories. My experience with and impressions from the use of cocain and adrenalin solutions were obtained in Vienna and London. The shrinkage caused by their application to the mucous membrane was much less marked and fewer cases responded to their use in Colorado than in those cities or Chicago.

The absence of these obstructive conditions affords better drainage and ventilation to the nose and ear, and may entirely relieve all the symptoms unless hard obstructions exist, and even then their absence would ameliorate the effect. This increased nasal space is beneficial to respiration and drainage and, hence, indirectly to the maintenance of normal hearing. The majority of diseases of the middle ear either occur or begin in childhood when the ear is least in condition to stand harmful influences. Even the adhesive process of later life has its foundation laid during the tender period of childhood. I am convinced, from the examinations for the public schools, that otitis media is less frequent among children here than in a damp climate. Acute tubotympanic catarrh seems to be less frequent and of shorter duration and less inclined to recur. This is due to greater nasal and tubal lumen, an advantage of great importance to the child, whose anatomic and physiologic conditions directly facilitate tubal obstruction. The horizontal tube, the increased vascularity of the underlying mucous membrane, and the increased physiologic activity of the child, coexisting as they do, afford adverse conditions which may, by a very slight change, entirely complete the tubal occlusion with all its consequent damage to the ear. The removal of adenoids, tonsils, etc., employed everywhere for the improvement of these cases, seems to improve them more in a dry than in a humid climate.

Climatic influence on the prevalence and character of acute catarrhal or acute suppurative otitis media, depends on the cause. For instance, it might have very little effect on otitis complicating scarlet fever or measles, whereas its influence on the frequency and severity of otitis from cold in the head, hypertrophic rhinitis or nasopharyngitis would be considerable. In the former group of affections, the percentage of cases might be quite as great in a dry, elevated atmosphere as elsewhere, in strong contrast to the percentage in the latter group, which would be considerably less.

Dr. James Patterson[2] of Colorado Springs states that patients suffering from chronic suppurative otitis media "come to Colorado, of their own accord, yearly because they find the discharge lessens and their general condition is greatly improved by doing so." I have seen a few cases in which remissions were longer and in which improvement on changing from a humid to a dry climate simulated that experienced by some in a damp atmosphere when the weather changes from a humid, cloudy condition to a clear, dry atmosphere. In cases of suppuration of the middle ear without bone necrosis which continue to discharge despite the removal of the adenoids and tonsils, the patients should try climatic treatment.

In the southwest, tuberculous patients are numerous. The tuberculous and non-tuberculous suffer from the same middle-ear diseases. The affections in the tuberculous, however, and by that I mean the pulmonary form, are modified by the constitutional condition of the individual and by the relative increase in the number of cases that acquire tuberculosis of the middle ear by auto-infection. Ordinarily, suppurative otitis media in the tuberculous runs an uncommonly chronic course. Many of the patients improve on changing to a dry climate. Comparatively few of this number fail to derive benefit from accompanying aural affections. Of all ear affections, there is none in which climate is of such comparative reliability as in those accompanying pulmonary tuberculosis in which the general condition will support the infection. Those early cases with sufficient vitality to improve do infinitely better here than elsewhere, owing to the stimulating effects of the environment, altitude and atmosphere on the general health of the individual, thus indirectly alleviating the ear disease. A necrosis of the temporal bone that would seem trivial in a healthy individual, might be serious in the tuberculous patient.

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[2] Patterson, James: The Climate of Colorado Etiologically and Therapeutically Considered, Laryngoscope, September, 1908.

Tuberculosis of the middle ear is so insidious in its onset, so complex in its course and so disastrous in its ultimate effects, that an early diagnosis and prompt treatment are paramount. The favorable opportunity for the arrest of tuberculous otitis, even more than in other forms, is in the beginning. The successful treatment of tuberculous infections hinges on the development of an immunity which, in turn, depends on healthy constitutional conditions. Immunity is obtained by furnishing the patient freely with good food, pure open air day and night and a maximum of sunshine. The effect of all these agencies is enhanced in the Rockies. There is surprising increase in appetite, weight, hemoglobin and metabolism. Dr. De Forest Willard[3] says: "For thirty years, even before Koch's discovery of the tubercle bacillus, I have persistently advocated and practiced the fresh air method of treatment for tuberculosis of the hip and spine and have never known it to be without benefit." Precisely the same is true of the open-air treatment of tuberculous otitis, and there is no place under the sun quite so favorable for ideal open-air treatment as is the Southwest. Here the climate, by its beneficial influence on the patient and its destructive action on the tubercle bacilli, affords the most favorable opportunities for ideal open-air treatment. Here the climate has a powerful influence on the treatment, whether it be local or surgical.

In case of hypersecretion with turgescence of the mucous membrane and underlying spongy tissue of the tube and nasopharynx; in secretory catarrhal affections in which, despite the removal of nasopharyngeal obstructions, ample tubal nasal lumen cannot be obtained; in patients operated on for obstructions without improvement in hearing, on account of an unhealthy state of the mucous membrane; as an accessory treatment to intranasal surgery and as an aid to the constitutional and local treatment of catarrhal otitis media, climate plays an important rôle. A large percentage of cases of secretory and dry catarrhal otitis media, which develop in a damp, changeable climate and which are aggravated by inclement weather, improve in a dry climate and may be permanently arrested, unless there has already taken place too much hypertrophy and atrophy of the sound-conducting mechanism.

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[3] Willard, De Forest: Open-Air Treatment of Surgical Tuberculosis, Tr. Internat. Cong. Tuberc., 1908.

Pulse-Rate in Male and Female.—A. H. Stewart says in the *Medical Record* that in man, as in nearly all animals, the pulse-rate is slightly slower in males than in females, in the proportion of 72 per minute for men and 80 for women. But as slowness of pulse, like slowness of respiration, nearly always goes with increased weight, the difference is probably no greater than would naturally be expected. In old age woman's pulse-rate is inclined to increase slightly more than man's.

HOW FAR MAY CONDITIONS IN THE NOSE AND THROAT BE RESPONSIBLE FOR MIDDLE-EAR DISEASES? *

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I have confined myself to a discussion of the extent to which diseased conditions of the nose and throat are either directly or indirectly a factor in the production of diseases of the middle ear.

That involvement of the middle ear is, in a great majority of cases, due to a diseased condition of structures contiguous to the Eustachian tubes is a fact on which all otologists are agreed. It is not a question, then, as to whether diseases of the nose and throat may be responsible for ear involvement; that question was quite definitely settled by Wilhelm Meyer[1] in 1870 when he published his paper on "Adenoid Vegetations in the Nasopharyngeal Cavity" and pointed out the effects of such growths in the causation of deafness. The questions at present are: To what extent are nasal and nasopharyngeal lesions responsible for deafness? What form of nasal and nasopharyngeal abnormalities are responsible for such ear complications. And are we attributing too little importance to the upper respiratory tract as an etiologic factor in the production of otitis media?

If there is a dark chapter in the history of otology, I think you will all agree with me that it is in the unsatisfactory and unsuccessful results with which we have to be content in the treatment of many of those cases of advanced adhesive processes of the middle ear attended by marked impairment of hearing, and, for that reason, another discussion and further emphasis of this clinical relationship between the upper respiratory tract and diseases of the middle ear seems advisable, although I regret that I have nothing new to present to you.

That impaired hearing is an extremely common affliction is evident, and of the different forms of deafness catarrhal otitis media and purulent otitis media furnish the vast majority of cases. Otosclerosis is not considered within the province of this paper, as, so far as I am aware, no evidence has been presented that it is due in any way to nasopharyngeal diseases or that any benefit is to be obtained by treatment directed thereto. Moreover, true otosclerosis furnishes such a small proportion of cases of deafness that it does not affect the importance of the subject under discussion.

Involvement of the middle ear may occur in the following manner: 1, through the external auditory canal, by involvement of the membrana tympani; 2, by the blood-vessels and lymphatics, and 3, by way of the Eustachian tubes. In considering the method of involvement of a middle-ear disease, it should also be remembered that any factor that impairs the vitality of the patient will be a contributing factor in the onset and progress of a middle-ear disease. I think it a conservative estimate to say that in 90 per cent. of all cases of catarrhal deafness and purulent otitis media the source of the involvement is by way of the Eustachian tubes.

Weil[2] examined 5,905 children and found that about 30 per cent. had some degree of deafness. Bezold[3] found, among 3,826 children, that 20 per cent. had deafness. Cheattle[4] examined 1,000 school children and found 335 had a discharge from one or both ears. Preysing[5] examined 100 children (post mortem), aged 1 day to 3 years, deaths due to various causes, and found that eighty-one showed middle-ear disease.

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* Read in the Section on Laryngology, Otology and Rhinology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

[1] Meyer: Med.-Chir. Tr., London, 1870, liii.

[2] Weil: Quoted by Politzer, Diseases of the Ear.

[3] Bezold: Quoted by Politzer, Diseases of the Ear.

Miller[6] examined fifty cases (post mortem), and thirty-seven showed pus in one or both ears. Meningitis was found in ten cases and eight of them showed pus in the middle ear. Randall[7] states that one-third of all adults are deaf in one or both ears and that among school children 25 per cent. are deaf. Bardes[8] estimates that two-thirds of the people have an aural defect. Barth[9] places the percentage of all children having otitis media during the first year of life as high as 80.

Bryant[10] states that the middle ear is involved in 98 per cent. of all cases of deafness; that the middle ear alone is involved in 84 per cent. of the cases, and that chronic middle-ear catarrh furnishes 69 per cent. of all cases of chronic deafness. Bürkner[11] states that among every 100 cases of ear disease, 67 per cent. are cases of middle-ear disease.

Diseased conditions in the nasopharynx are a prolific source of involvement of the Eustachian tubes and cavum tympani which may be caused in the following ways:

1. By mechanical obstruction of the osteum of the tube by large masses of adenoid tissue or by smaller masses situated laterally in the nasopharynx and encroaching on the orifice of the tubes and interfering with ventilation and drainage from the middle ear. This mechanical theory to account for the involvement of the Eustachian tubes by adenoid masses is one that has been quite generally accepted by otologists in the past. I believe that its importance has been greatly overestimated and that an extension of the adenoid mass to the opening of the Eustachian tube is the exception.
2. By direct extension of an inflammatory process from the nasopharynx to the pharyngeal opening of the Eustachian tube thus causing obstruction and infection from involvement of the tubal mucous membrane.
3. By entrance of mucous and infected material into the fossæ of Rosenmüller and into the pharyngeal opening of the Eustachian tubes, due to the presence of hypertrophied glandular tissue or to a chronic hypertrophic or atrophic pharyngitis.
4. By interference with the action of the tubal muscles, the levator palati and tensor palati, the proper and normal function of which is so necessary in maintaining normal ventilation and drainage of the middle ear.
5. By the presence in the fossæ of Rosenmüller of accumulations and adhesive bands, often the remains of former adenoids, or due to operative measures for the removal of adenoids.
6. In occasional cases, proper passage of air into the middle ear may be interfered with by paralysis of the fauces, resulting in an interference with the action of the tubal muscles.
7. By tumors of the nasopharynx.
8. By blood-vessels and lymphatics.
9. By adhesions of the soft palate to the pharyngeal wall.

The presence of hypertrophied glandular tissue in the pharynx and epipharynx is the most frequent source of middle-ear disease. That a considerable proportion of children, as well as many adults, are afflicted with adenoids, is a fact well known not only to the medical profession but to the laity. It is also a well-recognized fact that disease of the middle ear among children is very frequently due to adenoids, but I do not believe that the fact is sufficiently emphasized by otologists that many cases of deafness, which apparently have their origin in adult life, are due to the presence of adenoids during the early years of the life of the individual. While ear involvement is the most frequent complication of adenoids in children, yet it frequently happens that the involvement of the Eustachian tubes and tympanum is mild in character, not attended by pain or marked impairment of hearing, and is so insidious in its onset that it escapes attention. These repeated attacks of Eustachian salpingitis may be the cause of what is apparently a beginning chronic catarrhal otitis media in adult life. Kopetzky[12] found that 27 per cent. of adult cases showed the origin of the ear involvement to be in childhood. Barbarin[13] found that out of 100 cases of chronic middle-ear suppuration among adults, forty-two were traceable to infancy or childhood. The statement of Makenzie that the discovery of adenoids by Meyer had saved 100,000 people from deafness is a conservative one. A reference to the published statistics of different writers on the occurrence of middle-ear disease, as a complication of adenoids, will show a great lack of uniformity as to the frequency of this complication. This may be due, in some cases, to the class of patients from which the material for examination is obtained, or it may be that ear complications occur more frequently in some countries, or in certain portions of a country, than in others, or it may be due to the manner in which such examinations are made. If a careful objective examination were made in those cases of adenoids where there are no subjective symptoms or history indicating ear involvement some change would be found in the appearance of the membrana tympani in a very large proportion of cases, indicating some interference with the ventilation of the middle ear. Intermittent attacks of deafness in young children, occurring in connection with an acute coryza, are due to acute congestion of existing adenoid tissue with temporary involvement of the Eustachian tubes. Recurring attacks of subacute otitis media, usually mild in character, where the child complains of ear-ache for a short time, are due to temporary closure of the Eustachian tubes as a result of adenoids. Exclusive of the ear complications of the acute infectious diseases, a vast majority of the cases of acute purulent otitis media in children is due to adenoid tissue. In many of these cases there is no history of nasal obstruction or of mouth breathing and the only subjective symptoms are the attacks of ear involvement and of acute coryzas.

Arslan[14] found, in a series of 426 cases of adenoids, that 59 per cent. had ear complications. Barth[15] found 30 per cent. of adenoid patients had middle-ear disease. Wood[16] found 42 per cent. of adenoid cases had ear complications (149 cases). Kerrison[17] examined fifty children who had adenoids and found forty-five of them showed some evidences of aural disease, many of the cases showing greater retraction of the membrana tympani than usually accompanies tubal obstruction in adults.

From an examination of the records of 600 cases of adenoids, I found middle-ear involvement in 31 per cent. In my cases, only such ear complications were

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4. Cheattle: Quoted by Miller, Brit. Med. Jour., 1907, ii, 1772.
5. Preysing: Schmidt's Jahrbücher, 1906.
6. Miller: Brit. Med. Jour., 1907, ii, 1772.
7. Randall: Am. Jour. Med. Sc., July, 1910.
8. Bardes: New York Med. Jour., Dec. 24, 1910.
9. Barth: Ztschr. f. Ohrenh., 1898, xxxii.
10. Bryant: New York Med. Jour., May 23, 1908.
11. Bürkner: Quoted by Politzer, Diseases of the Ear.
12. Kopetzky: Ann. Otol. Rhinol. and Laryngol., 1907, xvi, 621.
13. Barbarin: Quoted by Kopetzky.
14. Arslan: Quoted by Herzig, New York Med. Jour., Feb. 6, 1909.
15. Barth: Monatschr. f. Orhenh., 1897, xi.
16. Wood: Am. Med., Oct. 3, 1903.
17. Kerrison: New York Med. Jour., 1906, lxxxiii, 816.

noted as were revealed by subjective examination. Barstow[18] reports that out of fifty-seven cases of adenoids in adults, twenty-five of the cases had aural complications. I have also called attention[19] to the frequency of adenoids in adults and to their influence in the production of middle-ear disease.

The presence in the fossæ of Rosenmüller of accumulations of lymphoid tissue, or of adhesive bands, is a frequent source of middle ear involvement. In many cases these accumulations in the fossæ are the remains of adenoid tissue present during childhood. Logan[20] has called attention to the presence of chronic epipharyngeal periadenitis in adults as a cause of middle-ear disease. He has shown, by pathologic examination, that the disease involves not only the glandular structure but extends to the muscular, vascular and connective tissues and considers it of special importance with reference to the tubal muscles. He reports 284 cases. between 25 and 59 years of age, and of the 284 cases, 210 had chronic progressive deafness; twenty-four were subject to recurrent attacks of acute otitis media; seventeen had chronic suppurative otitis media; thirty-three had no ear complications. Of the 210 cases of chronic progressive deafness, 182 showed improvement after the operation. Of the twenty-four cases of recurrent acute otitis media operated on, sixteen have had no recurrence. Of the seventeen cases of chronic suppurative otitis media, five have had no recurrence since the operation. The author found that these masses exist in greatest abundance in the fossæ of Rosenmüller. Emerson[21] frequently found degenerated tissue in the fossæ and showed that it is an important factor in causing or maintaining morbid conditions in the middle ear. Hays,[22] in a series of fifty cases of chronic catarrhal otitis media, varying in age from 5 to 70 years, found abnormalities of the nasopharynx in thirty-nine cases, and in thirty-three of them there was a diseased condition of the fossæ of Rosenmüller. He is of the opinion that adhesions are present in the fossæ in all cases of chronic catarrhal otitis media. Packard[23] has also called attention to the presence of adhesions in the nasopharynx and their influence on the middle ear. Jervey[24] has forcibly called attention to this condition and states that these formation bands in the fossæ consist apparently (1) of mucofibrous bands, or webs, generally in a perpendicular plane to the long axis of the fossa, and (2) of masses of granulation tissue, or hypertrophied glandular tissue, similar to adenoids, lying above, between and below these bands. He usually found them in adults and considered them as residua of old adenoids. Bryant[25] and others have emphasized the etiologic importance of adherent bands in the fossæ of Rosenmüller in the production of chronic catarrhal ottitis media.

Diseased faucial tonsils are an important etiologic factor in the production of disease of the middle ear, either directly or indirectly causing involvement of the Eustachian tubes. I believe this relationship between disease of the faucial tonsils and the middle ear has not been sufficiently emphasized. It is not at all unusual to have patients volunteer the information, immediately after a tonsillectomy under local anesthesia, that they can hear better, and this sometimes occurs-with patients who have made no complaint as to their hearing and in whom a previous history has elicited no subjective symptoms indicating an ear complication. As diseased faucial tonsils are so frequently associated with abnormal conditions in the nasopharynx it is difficult to say to what extent the tonsils are the direct cause of such ear involvement. An associated nasopharyngitis may be, and frequently is, due to diseased tonsils and the secondary pharyngitis usually shows marked improvement on removal of the offending tonsils. The variety of diseased tonsils which I have found most likely to be the contributing cause of a middle-ear complication, is the deeply embedded diseased gland so frequently present in adult life and these tonsils may be the means of causing or maintaining a middle-ear complication as follows: by direct extension of a chronic inflammation to the orifice of the Eustachian tube; by direct pressure backward and outward in the tonsillar fossa, thus interfering with the ventilation of the tympanum; by maintaining a constant source of infection from which pathogenic microorganisms or infected mucus may gain entrance to the tubes; by interfering with the physiologic action of the levator palati and tensor palati muscles; by causing venous congestion of the blood-vessels, thus causing a constriction of the caliber of the Eustachian tube and interfering with the entrance of air into the tympanum; by infection through the blood and lymph streams.

Attention has been called to the effect of diseased faucial tonsils on the middle ear by Myles,[26] Reik,[27] Hays[28] and others. Hays, in his study of fifty cases of chronic catarrhal otitis media, found that in ten cases the faucial tonsils indirectly affected the ears and adds that the tonsillar condition was in all cases associated with some pathologic condition in the nose and this association produced abnormal conditions in the nasopharynx.

The clinical relationship of diseases of the middle ear to diseases and abnormalities of the nasal passages must be considered an indirect rather than a direct one. Reference to the literature of the past ten years will show a great diversity of opinion as to whether an abnormality of the nasal passages is responsible for an ear involvement. That a nasal obstruction, if unaccompanied by an inflammatory condition posterior to it and by a normal nasopharynx, will not be responsible for disease of the middle ear is probably true. That the nasal passages have too frequently been held responsible for ear diseases and that the nasopharynx has escaped its share of responsibility is also true. We are forcibly reminded of this whenever we are consulted by that numerous class of patients whose nostrils have been subjected to such radical operative work, for the relief of a middle-ear involvement, that there is hardly a normal functionating structure left within the nasal passages.

The presence of a nasal obstruction does not always mean that it is a factor in a middle-ear involvement. A marked deviation or irregularity of the nasal septum may be of such a character that it interferes but slightly with either the inspired or expired current of air. An obstructive lesion situated low down in the nostril may so interfere with the expired air that the nasal secretions accumulate and may give rise to a nasopharyngitis, or a violent expiratory effort in blowing the nose, may drive the infected secretion into the Eustachian tubes and cause an involvement of the middle ear. I believe it may be stated, as a general rule, that any nasal lesion that is capable of causing a nasopharyngitis, or is attended by a purulent discharge, or so interferes with drainage of the nasal passages that the accumulated secretions may gain entrance to the Eustachian tubes, may be a cause of middle-ear disease.

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[18] Barstow: New York Med. Jour., May 6, 1905.
[19] Murray: Tr. Minnesota State Med. Soc., 1901, p. 107.
[20] Logan: Tr. Am. Otol. Soc., 1909, p. 511.
[21] Emerson: Ann. Otol. Rhinol. and Laryngol., 1907, xvi, 694.
[22] Hays: Ann. Otol. Rhinol. and Laryngol., June, 1910.
[23] Packard: Tr. Am. Otol. Soc., 1909, p. 505.
[24] Jervey: THE JOURNAL A. M. A., 1908, l, 1600.
[25] Bryant: Med. Rec., New York, lxxiii, 217.

[26] Myles: Am. Jour. Surg., July, 1908.
[27] Reik: Laryngoscope, 1908, xviii, 943.
[28] Hays: Ann. Otol. Rhinol. and Laryngol., June, 1910

A purulent discharge from an infected nasal sinus is a constant source of danger to the middle ear. This is particularly true of the sphenoid and posterior ethmoid sinuses the discharge from which passes backwards into the nasopharynx and is the cause of a nasopharyngitis, which, in turn, may extend to and involve the Eustachian tubes, or the purulent discharge may be blown into the tubes and cause an otitis media. Cobb[29] believes that in the treatment of chronic catarrhal deafness, the key to the situation is that most common of all causes of nasal catarrh, obstruction to drainage from the ethmoid cells, and he believes that the active factor in this obstruction is a peculiar formation of the middle turbinate. Jackson[30] of England believes that caries of the superior and middle turbinate and ethmoid cells is frequently responsible for middle-ear disease and quotes Woakes, who lays great stress on the association of deafness with atrophic changes in the ethmoid. Woakes[31] states that out of 921 cases of deafness, one in three and one-half (274 in number), showed also the presence of ethmoiditis. Of those showing both deafness and ethmoiditis, one in four had tinnitus only, one in twenty-five had vertigo only, and one in fourteen had both tinnitus and vertigo. Of the 647 of the 921 cases in which deafness was not associated with ethmoid disease, one in nine had tinnitus only, against one in four; one in 64 had vertigo only, against one in twenty-five, of the preceding 274; and one in thirty-two had both tinnitus and vertigo, against one in fourteen of the same group. Dundas Grant,[32] in his address before the American Academy of Ophthalmology and Oto-Laryngology in 1906, in discussing the question as to whether nasal obstruction, as such, can cause or keep up catarrhal conditions of the middle ear, referred to the report of Röpke of Solingten, who investigated the question of the influence of nasal obstruction on the ear and found that in a large majority of cases the hearing power was lower on the side on which the nose was obstructed. If there was lowered hearing power on both sides, it was almost invariably the ear of the side on which the nose was obstructed which was the worse. A further outcome of the investigations was that the hearing (in the majority of cases) was improved or even became normal within a few weeks after operative correction of the nasal obstruction, without catheterization or any other therapeutic measures being employed. He attributed the ear involvement to accumulation of secretions behind the obstruction and to their being driven up the Eustachian tubes. Grant does not refer to the character of the ear involvement present in Röpke's cases; a point of great importance in a consideration of the excellent results recorded by Röpke from nasal operation.

Atrophic rhinitis, usually accompanied by atrophic pharyngitis, is, in a considerable percentage of cases, complicated by middle-ear disease. Such ear involvement is due (1) to the atrophic condition of the mucous membrane of the pharynx, (2) to the patulous openings of the Eustachian tubes, as a result of the atrophic process, and (3) to the presence in the region of the tubal openings of crusts and mucopurulent discharge which may easily cause infection of the middle ear. Sendziak,[33] from a study of 1,142 cases of atrophic rhinitis, found aural complications present 166 times (14.5 per cent.). Wyss[34] found aural complications forty-seven times in sixty cases. Jurasz[35] found aural complications in twelve out of 170 cases of ozena.

Middle-ear involvement is one of the frequent complications of the acute infectious diseases of childhood. Statistics show that scarlet fever is complicated by ear involvement in from 12 to 30 per cent. of the cases, depending on the severity of the epidemic, and that measles is also complicated by ear involvement in about the same proportion. Statistics also show that a large proportion of those intractable cases of chronic purulent otitis media and of total deafness originate during an attack of the infectious diseases. What is the relation between the infectious diseases of childhood and diseases of the middle ear? During the acute diseases, most likely to be accompanied or followed by ear complications, such as scarlet fever and measles, there is present an acute inflammation of the nasopharyngeal structures which, in connection with the lowered resisting power of the patient and the short, wide, more nearly horizontal Eustachian tube of the young child, favors infection of the middle ear. In addition to this, if the patient has [illegible] obstruction, such as adenoids, which [illegible] inage or ventilation through the Eustachian tubes and furnishes a constant source of infection from microorganisms, there is added a very great source of danger to the middle ear. Moreover, after the onset of an acute purulent otitis media, during the course of an infectious disease, the presence of adenoids will be a most important factor in the continuance of the purulent discharge with resulting permanent deafness. In connection with this influence of adenoids on the middle ear during the course of the exanthemata, the investigations of Leland are of interest. Leland[36] examined 127 cases of scarlet fever at the Boston City Hospital. He found that eighty-four of the cases had adenoids and forty-three of the cases did not have adenoids. Of the eighty-four cases with adenoids, twelve of them, or 14 per cent., had ear complications, while there were no aural complications among the forty-three cases that did not show the presence of adenoids.

In connection with nasal and nasopharyngeal abnormalities it should be emphasized that any factor that lowers the resisting power of the patient, or a functional derangement of other organs of the body, may be an important factor in causing or maintaining the diseased condition of the upper respiratory tract, which may be the cause of a middle-ear involvement. This is particularly true of granular pharyngitis, which is often due to gastro-intestinal disturbances.

From this brief consideration of the etiologic relationship between diseases of the nose and throat and diseases of the middle ear, I would emphasize the following points:

1. A very large proportion of people are subject to some aural defect; disease of the middle ear furnishes from 65 to 70 per cent. of all aural diseases, and of all cases of deafness the middle ear is responsible for about 85 per cent.

2. Of all sources of involvement of the middle ear, about 90 per cent. are caused by involvement through the Eustachian tube.

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[29] Cobb: Med. Rec., New York, 1908, lxxiii, 818.
[30] Jackson: Brit. Med. Jour., 1907, ii, 969.
[31] Woakes: Quoted by Jackson, Brit. Med. Jour., 1907, ii, 969.
[32] Grant: Laryngoscope, January, 1907.
[33] Sendziak: Ann. Otol. Rhinol. and Laryngol., xvi, 814.
[34] Wyss: Quoted by Sendziak.
[35] Jurasz: Die Krankheiten der oberen Luftwege, 1891.
[36] Leland: Laryngoscope, October, 1909.

3. Adenoids in children are complicated by ear diseases in at least 30 per cent. of the cases. This percentage will be much higher if careful objective aural examinations are made and any change in the appearance of the drum membrane noted.

4. The nasopharynx is directly responsible for a very great majority of all diseases of the middle ear, and any intranasal or sinus disease that is capable of causing a nasopharyngitis, or is attended by a purulent discharge, or so interferes with drainage of the nasal passages that accumulated secretions may gain entrance to the Eustachian tubes, is a constant menace to the middle ear.

5. Many cases of chronic catarrhal otitis media that apparently begin in adult life, are the result of some diseased condition of the nasopharynx existing during childhood.

6. The presence of hypertrophy of the pharyngeal tonsil increases greatly the liability of serious middle ear complications during an attack of the acute exanthematous diseases.

7. Any conditions that interfere with the normal physiologic action of the Eustachian tubes will predispose to middle-ear disease, and the means of obtaining and maintaining such normal function of the tubes is through a normal nasopharynx and an important factor in maintaining a normal nasopharynx is a normal nose and fauces.

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WHAT IMPROVEMENT CAN RATIONALLY BE EXPECTED FROM TREATMENT OF THE NOSE AND THROAT IN MIDDLE-EAR DEAFNESS?*

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The title of this paper suggests that diseases of the nose and throat may cause, or at least may perpetuate when once begun, diseases of the ear. I believe no qualified aurist to-day questions the statement that pathologic states of the upper air tract exert a continued evil influence on the ear; and since the amount of benefit to hearing which may be derived from treatment of the nose and throat will depend largely on how much harm to the ear a given nasal or throat affection may have, or is continuing to exert, on the aural function, it will be necessary at the outset to discuss briefly two points, namely: (1) the dependence of normal aural function on a perfectly normal state of the nose and nasopharynx; (2) the determination of the manner in which a diseased aural environment may affect the middle ear; for, with the physiologic and clinical facts relating to these points before us the answer to the question involved in the title to this paper may be sufficiently answered in a few brief paragraphs.

Otologists are familiar with the fact that, in order to functionate normally, the drum-cavity must at all times contain air at a pressure approximating that which surrounds the body as a whole, and that which presses on the external surface of the drum-head in particular; that the normal air of the middle ear must be replenished by the circulation of air through the Eustachian tube; that such circulation of air in the drum-cavity, to the end that there shall be an equality of pressure on both sides of the membrana tympani, is brought about, not inevitably or by chance, but by the action of a delicate, well-balanced system of muscles, including the palatoglossei, the palatopharyngei and the palatolevatori.

Granting that the renewal of air in the middle ear is necessary to a healthy function, and that the coordinate action of the above system of muscles is essential to bring about the necessary renewal of air in the drum-cavity, it becomes easy to understand that the presence of any pathologic condition in the nose or nasopharynx which by mechanical pressure in any way hinders the action of this group of muscles, or which, because of adjacent disease and infection, may in any way impair their function, will, in proportion to the degree of such injury, impair the function of the middle ear and thereby open the way to aural diseases of a congestive, exudate or infective nature. Any hypertrophy, deformity or new growth in the posterior portion of the nose or of the nasopharynx constitutes such an obstruction. Take, for instance, one of the commoner affections which block the nose or nasopharynx, such, for example, as an adenoid hypertrophy, cystic polypus or posterior nasal hypertrophy. How do these affect the middle ear? In three ways: 1. The normal function of the entire epipharynx is mechanically interfered with. Normal action of the tubo-palatal muscles is hindered to an extent that the Eustachian tubes are not sufficiently opened for ventilation. Since nasal respiration is impossible, mouth breathing is enforced, and one physical result is that the air in the nasopharynx, Eustachian tubes and middle ear is thereby constantly exhausted and rarefied. This rarefaction is made more complete by the act of swallowing, which, when performed by persons whose nose or nasopharynx is obstructed from any cause, forcibly sucks the air from the tubes and middle ear, thus impairing function and inviting middle-ear disease. 2. The venous return circulation from the middle-ear and Eustachian tube empties into the veins of the pharynx. Local pressure, therefore, of obstructive growths in or near the nasopharynx retards this circulation to an extent that congestion of the mucous lining of the tubes and drum-cavities takes place, with the inevitable result that exudates or transudates into the middle ear sooner or later occur. Such a venous congestion must be regarded as a potent predisposing cause of suppurative otitis media as well as of the several plastic affections commonly known as dry middle-ear catarrh. 3. The mechanical stimulus produced by the presence of any growth in the nasopharynx results in the secretion of large quantities of ropy mucus, which, because of the difficulty with which it is dislodged by the patient, becomes stagnant and infected. This is especially true in case the obstruction is an adenoid hypertrophy. An examination of many hundred specimens of adenoid hypertrophy that were removed *en masse*, by one sweep of the adenoid curette, shows that this growth consists of several lobes which are separated by fissures which often extend from the surface of the adenoid down to the underlying fascia. In large adenoid hypertrophies these fissures are sometimes an inch long and almost half as deep. These deep recesses produce and harbor much of the vitiated, infected mucus in question. The adenoid itself is the seat of inflammatory action as a result of almost every sudden change of temperature. An examination of the nasopharynx of the adenoid patient shows, in nearly every instance, the presence of the vitiated mucus which covers the hypertrophy, fills the crypts and often stretches from the adenoid to the lip of the Eustachian tube, to the upper surface of the palate, or to other neighboring structure. As already stated it is difficult, because of the obstructed nostrils and the thick consistency of the mucus, for the patient to dislodge this secretion, and, lying stagnant in the epipharynx as it must, it furnishes an excellent pabulum for the propagation and growth of pathogenic bacteria, which lie, as it were, at the very threshold of entrance to the middle ear, ever ready to invade this organ, whenever, as is usually the case in the presence of conditions here enumerated, a fertile soil has been prepared in the mucous membrane which lines the Eustachian tubes and middle ear.

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Several otologists of note have stated that from 60 to 75 per cent. of cases of defective hearing, with or without aural discharge, can be fairly attributed to the presence of an adenoid, either now or at the time of onset of the aural affection. I quite agree with Bryant in his statement that the cause of tubal entrance of infections is nearly always some nasopharyngeal disturbance which interferes with the normal drainage function of the Eustachian tube, and that 95 per cent. of all middle-ear suppuration is due primarily to the tubal entrance of bacteria, and secondarily to abnormal conditions in the nasopharynx which interfere with the expulsion of bacteria.

It is rare, in my experience, to find a child with well-developed adenoid, untreated till the age of 10, in whom there is not found an easily discoverable loss of hearing. Both parent and patient may and often do stoutly assert that the hearing is perfect, and are in many instances honestly mistaken in this belief; inasmuch as they base their opinion on the fact that the child continues to hear spoken words without apparent difficulty. Ability to hear spoken words fairly well is, as we all know, not a sufficient evidence that the individual's hearing is unimpaired, for it is the common experience of all to find, on careful test by instruments of precision, that the function is often greatly impaired without the patient's having the slightest knowledge of the fact.

Although adenoid hypertrophy stands first as the initial cause of middle-ear deafness, the ill effects on the ear are not limited to early childhood, or to that period of the patient's life in which the adenoid is usually largest. While an adenoid may remain large to the fortieth year, as I have witnessed, it usually atrophies to a greater or less degree before the twentieth year. In its atrophic state, however, it continues to exert its damaging effect on the ear, for it continues, especially in bad weather, in a thickened and much-inflamed state, and, moreover, the fissures which originally separated the lobes, continue into old age, furnishing a perpetual source of mucoid, infected secretion. In most of these cases of long-standing adenoid on thorough inspection of the whole nasopharynx by means of the rhinoscopic mirror or pharyngoscope, it will be found that there is present a chronic nasopharyngeal inflammation. In many cases adhesive bands are seen, stretching between the posterior lip of the Eustachian tube and a near-by lobe of the adenoid. In some instances there exists an inflammatory adhesion between one or more lobes of the adenoid, and in nearly every instance gross evidence of a damaged and unhealthy epipharynx is present.

It has been pointed out by Reik and others that the faucial tonsils are a potent factor in the causation of middle-ear affections; that when hypertrophied and diseased they cause impaired ventilation of the tympanic cavity because of mechanical interference with the tubo-palatal muscles; that they harbor infection in the tonsillar crypts and as a result of pressure-interference with the return venous circulation from the middle ear they cause passive congestion in the latter cavity. Both from a dissection of the parts involved, and from a study of the anatomic region, as shown in the drawings of the most eminent anatomists, I am unable to infer that the tonsils could, except when very greatly enlarged, interfere seriously with the normal action of the tubal muscles, or could by pressure greatly retard the venous circulation from the drum cavity; but when they are greatly hypertrophied both these evil results are, I think, clearly apparent. It is, however, true, without question, that the medium-sized, or even small, diseased and submerged faucial tonsil, is a constant menace to the middle ear because of the large amount of infectious substance it constantly retains in its crypts, and because of the acute and severe inflammatory states it so readily takes on, as in tonsillitis and quinsy.

Other new growths or hypertrophied structures, for example, such as nasopharyngeal fibroid, affect the function of the middle ear in the same manner as just described in cases of adenoid hypertrophy, the chief difference being that the adenoid, because of its deep and numerous fissures, furnishes a better field for the growth of pathogenic bacteria, whereas other hypertrophies are usually smoother and harder and do not, therefore, retain the infected, vitiated mucus so well. But no matter what the nature of the obstruction, the continued presence of any obstructive growth in the nasopharynx which interferes with the function of the upper air-tract, becomes a menace to the integrity of the ear. Indeed, clinical experience has amply demonstrated the fact that few patients escape serious damage to the ear provided the nose or nasopharynx remains obstructed for any considerable length of time.

With the above considerations of the intimate physiologic and pathologic relations of the nose and throat to the middle ear in mind, we may more intelligently proceed to answer the question, "What improvement can rationally be expected from treatment applied to the nose and throat in cases of middle-ear deafness?" The answer to the question has been so clearly anticipated by what I have already said in describing the absolute dependence of the health of the ear on a normal state of the nose and throat that it is now necessary to add but little more. I think that the reply can be best given by dividing all aural affections into three periods, and then stating the effect of throat and nasal treatment on the aural disease in each. Following this plan we have, (1) cases in that period of the child's life before any aural disease is actually present; (2) cases in the period when there is an easily discoverable aural ailment, but at a time before the aural structures are seriously or permanently damaged; (3) all cases that have reached the period of chronicity, in which marked and more or less permanent changes in the middle ear are easily discoverable.

In the first of the periods above mentioned the results of treatment of the nose and throat on the ear are entirely prophylactic, since no aural affection is present in the case, and, viewed in this light, may not fall strictly within the subject assigned me. The importance of such treatment at this time, however, furnishes ample justification for the brief paragraph I shall devote to it.

I have for some time entertained the belief that much of the deafness that exists to-day is entirely unnecessary, and that it could have been prevented if intelligent efforts had been made to do so at a time in the child's life before the actual aural affection began. It is the opinion of many otologists that disease of the middle ear seldom starts in the ear itself, but on the contrary has its beginning, almost without exception, in a diseased aural environment, and later extends to the ear from the latter place. Rational treatment of the affected aural environment at this early period, will, therefore, in the vast majority of cases, be the means of preventing subsequent middle-ear disease. By rational treatment I mean the complete removal by surgical means, of all obstruction to normal nasal respiration, and to nasal and aural drainage, at the earliest possible time after it is known that such nasal or nasopharyngeal disease is present.

Patients belonging to the second period suffer only from acute or subacute aural ailments which have been originally set up by impaired nasal respiration plus faulty drainage of the nose and nasopharynx, and which are kept active by continued action of these causes. My experience in dealing with this class is, that good and satisfactory results are obtained in proportion to our ability to eradicate the diseased aural environment. Good drainage from the tympanic cavity is just as essential to successful treatment of middle-ear disease as it is to the satisfactory management of any other infected cavity, and hence this well-known principle of surgery should be followed here as elsewhere, to the extent of providing and maintaining a natural open-air channel between the deeply seated mucous cavity of the ear and the larger air-space of the nasopharynx to which it is accessory. In this period of the progress of the aural affection no plan of treatment yields results that can be favorably compared to those obtained from well directed surgery of the nose and throat. Even in the suppurative aural affections, when destruction of aural tissue has not been great, good results, both as to preservation of hearing and arrest of aural discharge, are usually obtained in greatest measure through medical and surgical means directed toward the nose and throat, for through such means only may we expect successfully to eradicate the bacteria breeding-places, to provide a nomal ventilation to the tympanum and to restore the function of the tubopalatal muscles, all of which improvements to the aural environment are entirely essential, as already shown, to the preservation of aural function.

While it is true that the degree of hearing which may be preserved by this plan of treatment during this period of the aural disease may fall far short of the normal, nevertheless, as already stated, not every one knows the normal, and hence the ordinary patient is well satisfied when he is able to hear common conversation distinctly and to discharge social and business duties without embarrassment.

In the final stages of the middle-ear disease, when tissue changes are palpable and of long standing, the benefits to the ear to be derived from the treatment of the nose and throat become less and less until ultimately no relief whatever may be expected. And yet in some such cases which are well advanced Emerson of Boston has stated that nasopharyngeal treatment is sometimes helpful. Emerson has especially pointed out the good results which may be obtained from breaking up any adhesions that may be found between the posterior lip of the pharyngeal Eustachian tube and a near-by lobe of an atrophied adenoid. He has also found in some cases that the fossa of Rosenmüller was filled with granular adenoid structure, the removal of which has resulted in the improvement of an existing tinnitus and marked benefit to hearing. Logan has obtained equally good results to hearing from the eradication of old, inflamed, adherent adenoid pads, after first breaking them up by means of the finger and then by the employment of the curette or other convenient method of complete removal. While I have secured encouraging results from the employment of the above and other means of nasal and nasopharyngeal treatment in a small percentage of cases, it is my belief that we should expect little in the way of comfort or improvement to hearing in the vast majority of cases. Indeed the ratio between the length of time the aural affection has existed and the amount of benefit that may be expected from treatment of the environment of the middle ear is very direct.

Briefly, it may be said that the earlier nasal and nasopharyngeal treatment is instituted the better the result, and *vice versa.* The statement may be positively made that, when nasal and nasopharyngeal disease is eradicated before the onset of an ear disease in the individual, disease of the ear will usually be prevented. When the child is permitted to "outgrow" the aural ailment, only partially successful results are possible at any time. When the aural affection is allowed to become chronic the value to the ear of nasopharyngeal treatment becomes progressively less effective in proportion to the degree of chronicity. Stated differently, nearly all middle-ear diseases are preventable by early treatment of the diseased environment; most are satisfactorily helped by such treatment in the early stages of the aural involvement; few are benefited by such treatment in the chronic period.

ABSTRACT OF DISCUSSION

DR. F. P. EMERSON, Boston: I think we are all agreed, as the various writers have stated, that the majority of these cases of otitis media originate in the nasopharynx, with the possible exception of those due to trauma, some cases of virulent external otitis, those due to accumulation of cerumen (cases which may themselves be due secondarily to the infection of the nasopharynx), cases due to fracture of the base of the skull, to labyrinthine invasion from meningitis and possibly a few cases of infection from the blood-current. We may expect improvement to the extent that we can localize and drain the focal infection. Treatment, in the nasopharynx, consists in the relief of the infection, which is communicated to the middle ear through the Eustachian tube. The middle-ear trouble is made progressive by constant reinfection. Any operation which does not take into account the involved sinuses, which may later reinfect the Eustachian tube, is of little moment from the otologic point of view. Many of these cases are of sinus origin. As the result of a hyperplastic ethmoiditis, which may be due to a deflected septum, obstruction of the frontal duct and an involvement of the frontal sinuses, which may in turn infect the ethmoid or sphenoid secondarily. Occasionally the sinuses may be involved from the start, with a virulent infection, but that is, in my experience, unusual. The point I wish to bring out is the importance of the Eustachian tube in keeping up, in these progressive cases of otitis, a constant infection, so that we do not get the improvement in the hearing after operation that we would otherwise expect. We are impressed, in using the instrument which I referred to yesterday, with the excursion of the Eustachian tube, which with normal deglutition opens and closes very widely. We find in a great many cases of unilateral deafness with tinnitus that there is granulation tissue in the fossa of Rosenmüller and it is constantly subjected to reinfection. We find also bands in the fossa. In many cases there is a congested area that extends into the tube. About five-eighths of the open end of the tube can be looked into during swallowing. We can determine the condition of the lining membrane of the tube and make out congestion, hypertrophy and atrophy. Sometimes we find lymphoid tissue in the tube. In advanced cases of otitis media, it does not make so much difference what is done in the nares, the patients will continue losing their hearing year by year. The greatest satisfaction follows treating the tube directly and relieving the infection. A great many of them, especially in chronic catarrhal salpingitis, have a narrowing of the tube, which is frequently quite marked at the isthmus. Sometimes there is a suppurative inflammation. Auscultation does not give any clue as to whether the tube is constricted. I have frequently inflated with air and then have been able to pass only a No. 2 sound, and could not pass Nos. 3 or 4, which showed narrowing.

Dr. Fred Stauffer, Salt Lake City: I would like to call attention to the condition of too greatly relaxed tympanic membranes from too much blowing of the nose. Dr. Heath of London has written an excellent paper on this subject. It is more important than we would think unless we look for that condition. From the frequent blowing of the nose, the Eustachian tubes are forcibly inflated and we have partial paralysis of the tensor tympani muscles and too much looseness of the ossicles and tympanic membrane, so that the sound wave does not produce acute hearing. In those cases we get better hearing on the street cars or railroad trains where the loud noises put these parts on tension. The treatment consists not only in the removal of the obstruction in the nose, which causes it originally, but also the toning up of the tympanic membrane with stimulants, as is outlined by Dr. Heath.

Dr. W. R. Murray, Minneapolis: I would only emphasize the fact that in middle-ear disease the amount of improvement to be obtained by treatment is inversely proportional to the extent to which the disease process has extended. In the exudative stage improvement may be expected from treatment. When advanced adhesive processes have taken place within the tympanum the results of treatment are very discouraging. Our treatment should be preventive.

Dr. J. F. Barnhill, Indianapolis: I only want to emphasize what Dr. Murray has said, that the one time to treat middle-ear trouble is before you get the disease—by preventing it.

REFRACTION CHANGES IN DIABETES [*]

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Since Horner first called attention to the subject and reported two cases to the Ophthalmologic Society of Zurich in 1873, a number of examples of sudden change in the refraction of glycosuric patients have appeared in the literature. The text-books have had little to say on the subject and what is to be found in the standard works is misleading.

The object of this paper is to call attention once more to the fact that the refraction not only may be increased in diabetes, but that it may be diminished; that both changes may occur in the same patient; and that the changes bear no necessary relation to the amount of sugar in the urine. As is well known, diabetes sometimes causes a true paralysis of accommodation, and in a number of cases of refraction change due to this disease there has been either a limited range, or a more or less definite paralysis. One author, at least, it seems to us, has confused a case of increased hyperopia with paralysis of accommodation. This case will be referred to later. Cases of increase in the refraction of the eye (increased myopia or diminished hyperopia) in glycosuria have been reported by Grimsdale, Appenzeller, Hirschberg, de Schweinitz, Neuberger, Groenouw, and others; but with these we have no present concern. The following cases from the literature, it seems to us, offer trustworthy evidence of diminished refraction due to diabetes:

Horner's[1] Case.—The patient was a woman, aged 55, who since August, 1870, had suffered with diabetes mellitus, passing an enormous quantity of urine, heavily loaded with sugar. She had been wearing no glasses, except for near work at night, when she used R. E. +0.75 Sph. L. E. +1.50 Sph. By the end of October her sight was failing and her glasses no longer were suitable. On November 19, she accepted, both eyes, +2.75 Sph. R. V. =5/5, L. V. =6/5; +1.50 Sph. was added for near. There was no intra-ocular lesion. As the diabetes improved the convex lenses no longer suited. Jan. 13, 1871, she accepted, both eyes, +0.75 Sph. Vision was the same as above noted, and the correction for presbyopia also the same (+1.50).

Risley's[2] Case 1.—The patient was a woman, aged 49, who had improved under treatment, and developed dimness of vision only after her symptoms of diabetes were largely relieved. Her old lenses (+2.75 Sph.) no longer served, and her vision was reduced to 1/5 in the right eye, and 1/4 of normal in the left eye; and there was no range of accommodation. With mydriatic, the following refraction was revealed:

R. E. +5.00 Sph. +1.25 Cyl. Ax. 75°, V. =6/6, L. E. +6.00 Sph. +0.75 Cyl. Ax. 105°, V. =6/6.

Ten days later her vision was again dim with glasses, and she accepted:

R. E. +3.00 Sph. +1.25 Cyl. Ax. 75°, V. =6/6, L. E. +3.50 Sph. +0.75 Cyl. Ax. 105°, V. =6/6, and accommodation was still absent.

Fifteen days later she accepted:

R. E. +1.25 Sph. +1.25 Cyl. Ax. 75°, V. =6/6, L. E. +1.50 Sph. +0.75 Cyl. Ax. 105°, V. =6/6.

Through several months of careful observation no further change was noted, though the patient steadily grew worse, with persistent glycosuria.

Risley's[2] Case 2.—The patient, a man of 74, had suffered with diabetes for at least six years, when he complained of dimness of vision. His refraction proved to be:

R. E. +1.50 Sph. +1.25 Cyl. Ax. 180°, V. =6/7.5, L. E. +1.25 Sph. +1.25 Cyl. Ax. 180°, V. =6/10.

From this time (August, 1896) until April, 1897, there was no change in the eyes. April 23, he complained of dimness of vision for distance and inability to read even large type with his reading lenses. His diabetes at this time was improved. He now accepted:

R. E. +2.50 Sph. +1.25 Cyl. Ax. 180°, V. =6/7.5, L. E. +2.50 Sph. +1.25 Cyl. Ax. 180°, V. =6/10.

May 20, he returned complaining that his vision was blurred with the distance lenses after a few days' use, and that he must hold his book too close in reading. He accepted his old glasses and had vision: R. E. 6/7.5?, L. E. 6/10.

Carpenter's[3] Case.—The patient, a woman aged 51, had consulted Carpenter six years before on account of presbyopia. She now complained of sudden inability to see clearly at a distance or to read with her near glasses. Her refraction, which had been a slight myopic astigmatism, was now hyperopic: R. E. +1.50 Sph. V. = 6/6, L. E. +2.50 Sph. V. =6/6. With +2.25 Sph. added she read Jaeger 1 at 30 cm. The urine had contained a large amount of sugar four weeks previously; and a reduction in the amount of sugar, under strict dieting, was coincident with the failing vision. There was no lesion of media or fundi. In three weeks, vision again blurred with glasses and she showed a myopia of 0.50 D.

Gallus'[4] Case.—The patient was a man of 51, who had had symptoms of diabetes for some time but had been under treatment only two weeks. He had been seeing well at a distance and wearing +2.00 spheres for reading. Recently his distant vision had failed and he saw better for distance with his reading lenses which no longer served their former purpose. His refraction, on March 28, 1905, was found to be:

R. E. +1.50 Sph. +0.50 Cyl. Ax. 180°, V. =5/8, L. E. +2.00 Sph. +0.50 Cyl. Ax. 180°, V. =5/5. +2.00 Sph. added enabled him to read the finest print. The eyes were in every way normal except for a slight pallor of the temporal halves of the disks and slight narrowing of the form fields with overlapping of red and green. May 23, the sugar was absent, and the patient was using his old correction (+2.00 Sph.) for reading. Refraction now was:

R. E. +0.50 Sph. +0.50 Cyl. Ax. 180°, V. =5/7, L. E. +0.50 Cyl. Ax. 180°, V. =5/5. With +2.00 Sph. added for near he was able to read the finest print. The fields were now noted as being wider but not normal.

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[*] Read in the Section on Ophthalmology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

1. Horner: Klin. Monatsbl. f. Augenh., 1873, xi, 438.

2. Risley: Tr. Am. Ophth. Soc., 1897, p. 121.

3. Carpenter: Abstracted in Ophth. Rec., June, 1902.

4. Gallus: Ztschr. f. Augenh., 1906, xv, 319.

LICHTENSTEIN'S[5] CASE.—This is of especial interest, inasmuch as it exhibits diabetes in a youth of 17 years, with complete paralysis of accommodation and an increase in hyperopia, proved by repeated examinations under cycloplegia. This patient showed, on March 8, 1906, a slight anisocoria, and reduced vision. His eyes were otherwise normal. His manifest refraction was +1.50 Sph., both eyes, V. =6/6. This agreed with retinoscopy. A +12.00 Sph., both eyes, was required to read Jaeger 1 at 9 cm. The diagnosis of complete double-sided paralysis of accommodation was made, for which no cause could be discovered by the ophthalmologist or neurologist, except diabetes, which was established by the internist. There was 4.5 per cent. of sugar in the urine, of which six liters were passed daily. The diabetes increased in spite of treatment. On the following day the manifest refraction was +2.50 Sph., and +13.00 Sph. was required for near. Homatropin was then used, with the same finding; namely, +2.50 Sph. Two days later, under atropin cycloplegia, hyperopia =3.50. There was no change in the next two weeks, during which time the sugar was reduced and the patient gained in weight. In another week the refraction was still +3.50 Sph., and now a +11.00 Sph. was sufficient, instead of +13.00, to bring the near point to 9 cm. Thereafter a steady strengthening of the accommodation was manifested by the progressively smaller convex lenses required, until two months later, when a +5.00 Sph. sufficed. During this time the hyperopia was found to be 3.00, 2.50, 2.00, and finally 1.50, the latter estimate being with atropin cycloplegia. The thoroughness of the use of cycloplegia in this case is attested by the patient's refusing to return for further examination on account of his fear of atropin.

LANDOLT'S[6] CASE.—No mention is made of the use of a cycloplegic, and the amount of hyperopia developed is too small to be conclusive. The patient was a woman, the subject of a traumatic diabetes, who had arrived at an age when the accommodation is almost *nil*, and in whom the refraction was made repeatedly with great care, according to the authors' statement. A hyperopia of 0.50 developed, and the refraction showed variations in direct proportion to the amount of sugar in the urine, finally returning to emmetropia.

DOYNE'S CASE.—Unfortunately we do not know the refraction of Doyne's[7] patient, a physician aged 40, previous to his acute diabetes; but the subsequent history points strongly to an increase of hyperopia, later approximating emmetropia with the cure of the diabetes. Early in the course of the disease, when vision had become very dim, hyperopia was 3.00 D. With improvement in the patient's general condition the error gradually lessened until, when the urine was entirely free from sugar, the refraction was +0.75 Sph. with homatropin cycloplegia.

JACKSON'S[8] CASE.—A woman, aged 52, came with a history of diabetes of some years' standing. Recently the amount of sugar had greatly increased and the general condition was worse. Until a few weeks before, the patient's distant vision had been good. At the time of her visit vision was 4/60. With R. and L. +2.25 Sph., vision was 4/4. These lenses were prescribed for distance, and +2.00 added for near. Three months later she returned complaining that she could not see with the distance glasses and the reading lenses were unsatisfactory. Vision without lenses was now 4/4, and the same with +0.50 Sph. She was given +2.75 Sph. for near work and there was no change six weeks later, but she grew rapidly worse and soon died.

LUNDSGAARD'S[9] CASE 1.—The patient was a woman of 57, who was given +0.50 Sph., both eyes, V. =6/6, in March, 1902. No lesion was found in her eyes at this time. In July, 1905, she developed abnormal thirst and hunger and passed three to four liters of urine daily. Numerous examinations of the urine during 1905 revealed no sugar. A trace was present in February, 1906. In August, 1906, there was 7.75 per cent. of sugar. With restricted diet the percentage fell to 2.25 per cent. in ten days. August 24, the patient noted a dimness of vision which remained unchanged for eight days. Examination revealed R. E. +2.50 Sph. V. =6/6; L. E. +2.00 Sph. V. =6/6. No lesion of either eye. Accommodation was recorded as corresponding to the patient's age. The sugar diminished in quantity during September, and on September 15 the refraction was: R. E. +2.00 Sph., L. E. +1.50 Sph. By October 14 sugar was absent, and on November 19 the cloudy vision had disappeared. She read with her old reading lenses, and the refraction was the same as in 1902 (hyperopia =0.50), with normal vision.

LUNDSGAARD'S[10] CASE 2.—The patient was a woman aged 50. She had had diabetes for half a year. July 8, 1907, she suddenly found that her glasses (+1.50 Sph.) caused blurring. Her refraction was now found to be R. E. +3.00 Sph. V. =6/6, L. E. +3.50 Sph. V. =6/6. Accommodation was normal and ophthalmoscopic findings normal. Tension normal. Two days later the dimness of vision vanished and she saw with her old glasses. On July 15, the refraction was recorded as emmetropic. V. =6/6. The sugar, which was 6.2 per cent. on June 26, fell to 2.5 per cent. on June 29, 1.7 per cent. on July 2, 0.3 per cent. on July 5, 0.2 per cent. on July 8; thus we note a sudden increase in hyperopia occurring some days after the sugar had fallen from a high percentage to a mere trace. The accommodation remained normal throughout. The author states that he had no opportunity to use atropin.

LUNDSGAARD'S[10] CASE 3.—This is unique in the thoroughness with which it has been studied and reported. A woman, aged 50, stated that her vision had been good until presbyopic symptoms appeared one year previously. She had been given a glass for near work which was later increased to +1.50 Sph. For a half year she had suffered with diabetes, and the sugar had increased from 2.5 per cent. to 6 per cent. At the time of her first visit (Nov. 5, 1909) she was disturbed by blurring of distant vision and inability to use her reading lenses. She had headache and saw objects distorted, curved and angular, with the left eye. Refraction showed R. E. +1.50 Sph. V. =6/6, L. E. +2.00 Sph. V. =6/12. With +3.50 Sph. both eyes, she could read Jaeger 1. With the left eye the letters were out of line, some higher, some lower. The Schiötz tonometer revealed normal tension and the Javal ophthalmometer showed corneal astigmatism. The right pupil was slightly smaller than the left. Both reacted normally. The media were clear except for a mass of grayish, punctate flecks, partly vacuoles, in the right eye. They appeared to be in the front part of the lens, distinctly seen with the corneal loupe. The left eye showed no such appearance when the pupil was widely dilated with homatropin.

November 15, R. E. +2.50 Sph. V. =6/6—; L. E. +2.50 Sph. V. =6/12.

November 18, sugar 0.85 per cent.

November 22, no change; atropin, left eye.

November 30, R. E. +1.00 to +1.50 Sph. V. =6/6—; L. E. +2.00 Sph. V. =6/12.

November 15, R. E. +2.50 Sph. V. =6/6—; L. E. +2.50 Sph. V. =6/12—.

December 30, refraction and vision were unchanged. Flecks and vacuoles unchanged. Sugar 2.3 per cent.

January 16, 1910, no change in refraction or vision. Atropin was used each time in the left eye in order to study the lens changes with a dilated pupil. The opacities seemed less numerous than formerly and very superficial and mostly in the periphery.

February 1, the right eye was reported emmetropic with vision 6/9; the left eye (manifest and under atropin) +0.50 Sph. V. =6/12. The distortion of objects in the left eye was unchanged, though the usual tests with straight lines for metamorphopsia showed no abnormality. During these numerous examinations, the ophthalmometer and tonometer readings showed at no time any change in tension or corneal astigmatism. The patient said that she saw as well as before the development of her diabetes, though the lens opacities remained unchanged.

KNAPP'S[11] CASE 1.—The patient was a woman of 47, who was found to be emmetropic by skiascopy, and accepted no

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5. Lichtenstein: Ztschr. f. Augenh., 1906, xvi, 330.
6. Landolt and De Wecker: Traité complet d'ophthalmologie, iii, 388.
7. Groenouw: Augenleiden bei Diabetes Mellitus, 1907, p. 46.
8. Jackson: Tr. Acad. Ophth. and Oto-Laryngol., 1905, p. 221.
9. Lundsgaard: Ztschr. f. Augenh., 1907, xvii, 156.
10. Lundsgaard: Klin. Monatsbl. f. Augenh., 1910, xlviii, 38.
11. Knapp: Ztschr. f. Augenh., 1909, xxi, 420

lens for distance, in December, 1907. She was given +1.25 Sph. for her presbyopia. Oct. 26, 1908, she reported that she had suffered with diabetes since the first of the year, and for several days her vision had been poor for distant and near objects. Her vision was 6/36. Skiascopy showed hyperopia of 2.00 D., and +2.00 Sph. gave 6/9 vision. With +4.00 Sph. she read finest type at 30 cm. Ophthalmoscopy revealed red disks, but no lesion. November 9, there was no sugar in the urine and she accepted: R. E. +1.00 Sph. V. =6/6; L. E. +0.50 Sph. V. =6/6; agreeing with skiascopy.

November 23, R. E. +0.50 Sph.; L. E. +0.25 Sph. No sugar.

February 13, 1909, R. E. +0.50 Sph. V. =6/6; L. E. emmetropia, V. 6/6. R. E. +1.00 Sph. gives Jaeger 1 at 25 cm. L. E. +1.00 Sph. gives Jaeger 1 at 22 cm. The refraction was the same at this time with homatropin cycloplegia.

KNAPP'S[11] CASE 2.—The patient was a man of 48, who had a severe diabetes of only a few weeks' duration when, in April, 1908, he complained of dimness of vision, coming on over night, for both far and near. Skiascopy revealed a hyperopia of 1 D., and +1.25 Sph. brought vision up from 1/3 to normal. To read Jaeger 1 at 20 cm., +5.00 Sph. was required, showing a weakened accommodation. Four weeks later the sugar had disappeared and the patient's sight was good without lenses. Skiascopy revealed emmetropia and V. =6/6 without lenses. Accommodation, 2 to 2.50 D. In March, 1909, *emmetropia, both eyes, and V. =6/6. With +1.00 Sph. the* patient read Jaeger 1 at 35 cm. He continued well and worked as a chemist without glasses. Neither of Knapp's cases had any abnormality of tension or demonstrable lesion in the eye.

ZENTMAYER'S[12] CASE.—The patient was a woman, aged 58, who had been under treatment for glycosuria for three weeks when she consulted the ophthalmologist, Oct. 4, 1909, complaining of rapid loss of vision for the past ten days. She had worn glasses only for near work during the preceding six years, but now could see better with these lenses for distance than without them. Vision was R. E.=6/60, L. E.=6/60; fields practically normal. Tension of left eye +?. There was marked arteriosclerosis of the retinal vessels. Otherwise the eyes were normal. Refraction was found to be:

R. E. +2.50 Sph. +0.25 Cyl. Ax. 165°, V. =5/5, L. E. +2.50 Sph. +0.50 Cyl. Ax. 15°, V. =5/5; +2.50 Sph. added, both eyes, enabled her to read type 0.37 at 25 cm. October 26, there was no change noted in the hyperopia or vision. November 9, R. E. +1.25 Sph. V. =6/5 pt.; L. E. +1.25 Sph. V. =6/5 pt. Accommodation unchanged.

Jan. 17, 1910, R. E. +0.50 Sph. V. =6/6 pt.; L. E. +0.75 Sph. V. =6/6 pt. Accommodation unchanged. Dr. Zentmayer states that the sugar, which had been as high as 5 per cent., was lessening at the time when vision failed, and had been absent for two days previous to her first visit to him (October 4).

ROBERTS'[13] CASE.—Roberts reported the following case under *the title of "Transient Cycloplegia Due to Glycosuria"*: A man, aged 51, the subject of diabetes, complained of inability to read with his old reading lenses and inability to see distant objects distinctly without lenses. Heretofore he had seen distinctly, without lenses for distance, and with +1.75 Sph., both eyes, for near. The sugar in the urine was now 3/8 per cent., whereas two weeks before it had been 7 per cent. R. E. V. =6/22.5; L. E. V. =6/15. Manifest refraction was: R. E. +1.75 Sph. V. =6/5; L. E. +1.75 Sph. V. =6/5. The addition of +2.25 Sph., both eyes, was necessary to bring the near point to 13 inches. No lesion was discovered in either eye. One month later his general health was improved. His last glasses had been satisfactory until within a few days; but now they blurred his distant vision, and required that he hold his book too close to the eyes. Vision, with correction, was 6/12. Manifest refraction showed: R. E. +1.00 Sph. V. = 6/5; L. E. +0.75 Sph. V. =6/5; with +2.25 Sph. added for near. Nine months later he reported that his eyes had gradually returned to their previous condition and he used his original lenses for reading (+1.75). It would seem to us that this is really a case of increase of hyperopia in the course of diabetes, with a very small amount of paresis of accommodation; for the patient required +1.75 Sph. for presbyopia before his diabetes, and only +2.25 Sph. added to his distance correction when first seen by Dr. Roberts; and when seen later his presbyopia remained the same, while his hyperopia had diminished 0.75 D. in the right eye and 1.00 D. in the left; later still both the hyperopia and the slight paresis of accommodation disappeared practically, allowing the use of the original reading lenses only (+1.75).

GOULD'S[14] CASE.—In April, 1907, Dr. George M. Gould reported a case of rapidly changing refraction in the person of a physician suffering from glycosuria, and reviewed the literature. His patient was a man, 58 years of age, whose eyes he had repeatedly examined under cycloplegia. In December, 1902, he had been wearing:

R. E. —2.62 Sph. —0.75 Cyl. Ax. 35°, V. =20/20+; L. E. —2.62 Sph. —1.25 Cyl. Ax. 167°, V. =20/20+, with +1.75 added for near in bifocals. On the eighteenth of that month the patient complained of eye-strain and blurred distant vision and accepted the following:

R. E. —3.25 Sph. —0.75 Cyl. Ax. 25°, V. =20/20+; L. E. —3.25 Sph. —1.50 Cyl. Ax. 166°, V. =20/20+, with +2.12 added for near in bifocals. There was also a limitation of the range of accommodation. Other symptoms suggested examination of the urine, which was found loaded with sugar. A strict diet was prescribed, *and in a week the sugar had disappeared* from the urine, but the eye-strain had returned. A reexamination showed that the error of refraction had returned almost exactly to the point of seven days before. In the next four years the patient was less careful of his diet, and in December, 1906, accepted the following:

R. E. —2.87 Sph. —0.37 Cyl. Ax. 25°, V. =20/20+; L. E. —3.00 *Sph. —1.50 Cyl. Ax. 172°, V. =20/20+, with +2.50* added for near in bifocals. In February, 1907, there was increasing evidence of ill health, a high percentage of sugar in the urine, and symptoms of eye-strain. The rigid diet was resumed and in a few days the glycosuria had disappeared, but the eye-strain was worse than ever. Examination showed the following error:

R. E. —2.00 Sph. —0.62 Cyl. Ax. 20°, V. =20/20+; L. E. —1.87 Sph. —1.37 Cyl. Ax. 170°, V. =20/20+, with +2.00 added for near.

Dr. Gould writes us that the patient continues in good health and is now wearing:

R. E. —2.50 Sph. —0.87 Cyl. Ax. 35°, V. =20/20+; L. E. —2.50 Sph. —1.50 Cyl. Ax. 170°, V. =20/20+, with +2.37 added for near.

Attention is called to the fact that, ignoring the astigmatism, the myopia increased from —2.62 to —3.25 and then, after a period of careful dieting, fell to —2.00 in one eye, and —1.87 in the other, five-eighths of a diopter in one eye and three-quarters in the other, below what may be termed the normal myopia for the individual—the amount present before the glycosuric changes began. This, we believe, is not to be explained on the ground of careless refraction or lack of cycloplegia.

Dr. Gould very properly calls attention to the fact that no case of this sort can adequately be studied without cycloplegia if the patient still retains any accommodation, and that the previous static refraction should be known. He also says that there is no reported case of myopia (with sudden change in diabetes) in which glycosuria has not had the effect of increasing the myopia. He believes it illogical, if not impossible, that the same cause can also bring about an increase of hyperopia, and questions the accuracy of the observation of those who have reported such cases. It seems to us that Dr. Gould's own case disproves his contention. As we have already pointed out, after increasing and then falling back to normal, and increasing again, his patient's myopia diminished five-eighths and three-quarters of a diopter below the starting point. The following cases from our practice, however, show that the refraction may increase and diminish in the same patient in glycosuria:

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[12] Zentmayer: Abstracted in Ophth. Rec., February, 1911.

[13] Roberts: Arch. Ophth., 1909, xxxviii, No. 4.

[14] Gould: New York Med. Rec., April 20, 1907.

Wescott's Case.—Miss K. H., stenographer, aged 36, was referred to one of us (C. D. W.), because of headache, in February, 1896. Under complete cycloplegia with homatropin and cocain she accepted:

R. E. +0.75 Sph. V. =6/6; L. E. +0.75 Sph. V. =6/6. She was given the full correction for near work only, with relief from her headaches. In May, 1898, she was complaining again and under homatropin and cocain accepted:

R. E. +0.87 Sph. V. =6/6; L. E. +0.62 Sph. V. =6/6. She was given the above, less 0.25 Sph., for constant use, and was again relieved of her symptoms. In May, 1903, she suffered again from headache and was again examined under homatropin and cocain, accepting:

R. E. +1.00 Sph. +0.25 Cyl. Ax. 180°, V. =6/6+; L. E. +1.25 Sph. +0.25 Cyl. Ax. 180°, V. =6/6+. She was given the above, less 0.37 Sph., and was comfortable once more. In July, 1906, she was again complaining, and under the same cycloplegia accepted:

R. E. +1.25 Sph. +0.25 Cyl. Ax. 180°, V. =6/6; L. E. +1.00 Sph. +0.25 Cyl. Ax. 180°, V. =6/6. Given the above, less 0.25, for distance and added +0.50 for near in bifocals. In September, 1907, when the patient was 47 years of age, she returned, saying that she could not see well with her distance glasses. The external eye, reflexes, and fundus were normal. Under homatropin and cocain she now accepted:

R. E. —0.25 Sph. +0.50 Cyl. Ax. 15°, V. =6/6—; L. E. —0.25 Sph. +0.50 Cyl. Ax. 165°, V. =6/6—. A few days later without cycloplegia she accepted:

R. E. —0.50 Cyl. Ax. 105°, V. =6/6—; L. E. —0.50 Cyl. Ax. 75°, V. =6/6—. This was prescribed, with +0.75 Sph. added in bifocals. There was no paralysis of accommodation. Diabetes was suspected and the patient was advised to consult her physician for general examination and treatment. November 2, 1907, she returned, complaining that she could no longer see to read with the glasses prescribed in September, and her bifocal segments were increased to +1.50 Sph. At this time her physician, Dr. Annie Sage, reported 5 per cent. of sugar in the urine. November 12, sugar 8.266 per cent. Acetone absent. March 19, 1907, the patient returned, complaining that she could not see well, far or near, with or without glasses. Examination showed that distant vision was reduced to 6/45, with either eye, with her correction, and near vision to Snellen 2 D. at 14 inches. With +3.00 Sph. added, distant vision was restored to 6/6—, and near vision to Snellen 0.50 D. at 8 to 18 inches. She was given +3.00 Sph. in a grab front to be worn over her bifocals. Sugar 4.533 per cent. Diacetic acid and acetone absent.

November 25, sugar 6 per cent.

December 2, sugar 4.266 per cent.

December 12, 1907, the patient returned her grab front, as the vision had improved so much that she was able to get along with her correction. Distant vision at this time was 6/12 with either eye. There was 5.866 per cent. of sugar in the urine on March 28, 1908; she saw better without her glasses than with them, and was again examined under homatropin and cocain, with the following result:

R. E. +1.00 Sph. +0.37 Cyl. Ax. 180°, V. =6/6; L. E. +1.00 Sph. +0.37 Cyl. Ax. 5°, V. =6/6. The patient was given the above, less 0.25 Sph., for distance, with +1.25 Sph. added in bifocals. At this time when the refraction had increased to and beyond what was normal for her when the rapid change began, the urine contained 6.66 per cent. of sugar. After this examination, however, her health failed rapidly, the amount of sugar increased to 15 per cent., and she died in coma, without being seen by us again. This case also shows that hyperopia may decrease, increase, and decrease again, while the amount of sugar more or less steadily increases.

Ellis' Case 1.—Catherine M., domestic, aged 40, seen in December, 1907, for some time had noticed that vision was variable, and three weeks previously Dr. N. S. Davis of Chicago had diagnosed diabetes. Vision: R. E. 6/30; L. E. 6/15. Under cycloplegia with homatropin and cocain she accepted the following:

R. E. +4.50 Sph. V. =6/6+; L. E. +4.50 Sph. V. =6/6+. A few days later, without cycloplegia, she accepted:

R. E. +4.00 Sph. V. =6/6+; L. E. +3.75 Sph. V. =6/6+, and this was ordered for constant use. At this time the urine contained 3 per cent. of sugar.

In March, 1908, the patient returned, complaining that she could no longer see well with the glasses and had discarded them. Reexamination under homatropin and cocain gave the following result:

R. E. +2.25 Sph. +0.25 Cyl. Ax. 10°; V: =6/6; L. E. +1.57 Sph. +0.37 Cyl. Ax. 30°, V. =6/6. Given the above, less +0.50 Sph. The patient was then passing four quarts of urine containing 2.5 per cent. of sugar.

Ellis' Case 2.—Mrs. J. T. W., aged 48, was referred by Dr. Julius Hoelscher of Chicago in September, 1910. The patient complained that her eyes had so changed in the past few weeks that she could see clearly in the distance with glasses used for some time for reading, and that they were no longer satisfactory for near work. Dr. Hoelscher reported polydipsia and polyuria and 4.5 per cent. of sugar in the urine. No diacetic acid or acetone was present. The patient had been examined by him one year before, and six months before, and no diabetes was found. The external eye, the reflexes, and the fundus were normal. R. V. =6/45, L. V. =6/45. With old reading glasses:

R. E. +2.50 Sph. +0.75 Cyl. Ax. 45°, V. =6/5; L. E. +3.00 Sph. V. =6/5. Under homatropin and cocain the patient accepted:

R. E. +2.75 Sph. +0.50 Cyl. Ax. 60°, V. =6/5; L. E. +2.75 Sph. V. =6/5. After passage of mydriatic a few days later she accepted:

R. E. +2.50 Sph. V. =6/5; L. E. +2.50 Sph. V. =6/5. The above was ordered, with +1.50 Sph. added for near. There was no paralysis of accommodation. In December, 1910, the patient came complaining of poor distant vision with glasses, and stated that vision was much better without them. Examination showed vision 6/9 in either eye without glasses, and 6/30 with correction. Without mydriatic she accepted:

R. E. +0.75 Sph. +0.50 Cyl. Ax. 45°, V. =6/5—; L. E. +0.75 Sph. V. =6/5, which was given, with +1.50 added for near. At this time the urine was free from sugar. February 14, 1911, this patient was again examined under homatropin and cocain. The fundus was normal and she accepted:

R. E. +1.00 Sph. +0.37 Cyl. Ax. 45°, V. =6/6+3; L. E. +1.25 Sph. +0.25 Cyl. Ax. 165°, V. =6/6+4. A few days later without mydriatic she accepted the above, less 0.25, and +1.50 added for near. No paralysis of accommodation. This case, like our first one, shows an increase of hyperopia, though we do not know how much, followed by a very marked decrease.

Ellis' Case 3.—A woman, aged 65, was seen July 12, 1910, Her distant vision had been failing rapidly for three months, with dull headache on near work. The ophthalmoscope showed sclerosis of the lenses and pronounced retinal arteriosclerosis. R. V. =6/22—1, L. V. =6/22—1. She was wearing +2.75 Sph., both eyes, for near, and read Snellen 0.50 at 9 inches. Under homatropin and cocain she accepted:

R. E. —0.75 Sph. —1.00 Cyl. Ax. 15°, V. =6/9; L. E. —0.75 Sph. —0.50 Cyl. Ax. 135°, V. =6/12. She was given the above, with +2.50 added for near. On August 16, 1910, she saw better without glasses. R. E. V. =6/22; L. E. V. =6/22; with glasses V. R. E. =6/45; L. E. =3/45. Under homatropin and cocain she accepted:

R. E. +1.75 Sph. +0.25 Cyl. Ax. 120°, V. =6/9+; L. E. +1.75 Sph. +0.25 Cyl. Ax. 180°, V. =6/9. March 17, 1911, she again saw better without distance glasses than with them. She admitted carelessness in diet.

R. V. =6/12+, with correction =6/30; L. V. =6/12+, with correction =6/30. Under homatropin and cocain she accepted:

R. E. +0.75 Cyl. Ax. 130°, V. =6/9+2; L. E. +0.50 Cyl. Ax. 15°, V. =6/9—2.

A review of the above cases shows that a much more extended and accurate study is necessary for a solution of the problem involved. As has been pointed out, the static refraction of the patient in health should be known, and careful examinations are desirable as often, at least, as the patient is able to recognize changes in his vision. It goes without saying that all examinations should be made under cycloplegia when any accommodation remains which could interfere with accuracy. Frequent and regular examinations of the urine should be made for sugar and other substances which may affect the refraction or the accommodation. The fact that there is no definite relation between the amount of sugar in the urine and the refraction changes is very suggestive, as is also the fact that partial or complete paralysis of accommodation may or may not be present in cases showing an equal amount of sugar in the urine. The fact that the most startling changes in the vision and refraction have occurred when the general condition was improving and the urine free from sugar, points to the possibility of another agent as the offending factor in at least a portion of the cases. We regret exceedingly not being able to make more extended studies in our own cases; but two of our patients were working women who could give us little time, and who gave the internist even less opportunity for the study of their metabolism.

Numerous theories have been proposed in explanation of refraction changes in the course of diabetes, generally assuming that the presence of sugar in the lymphatic circulation of the eye produces alteration in the refractive indices of the media, cornea, aqueous, lens, and vitreous; or else that the volume of the globe is altered through the loss of fluid in diabetes. For example, Landolt[6] explained his case of diminished refraction on the theory of augmentation of the index of refraction of the vitreous body, since the vitreous presents a concave surface to incident rays. He thought that changes in the volume of the globe could not occur rapidly enough to account for the changes in refraction observed in his patient. On the contrary, Horner[1] believed that sudden loss of fluid from the eye was responsible for developing hyperopia. Schmidt-Rimpler,[15] not referring to diabetic cases especially, said that loss of fluid, with minus tension, does not alter the refraction of an eye. In perhaps the most thoroughly studied of all the cases found in the literature, Lundsgaard's third case,[10] repeated examinations with the ophthalmometer and the Schiötz tonometer revealed no alterations in corneal curvature or tension of the eyes during the period of varying refraction.

An increase of refraction in the course of cataract development is a very frequent phenomenon. On the contrary, Machek[16] detailed three cases of diminished refraction in the course of the development of subcapsular cataract with central transparency of the lens; and Priestley Smith[17] speaks of hyperopia developing in incipient cataract. In diabetic cataracts, the lens has been found, on chemical examination, to contain sugar (Liebreich, Leber); Nagel, on the contrary, did not find sugar in the lens. Lichtenstein[5] thought that change in the index of refraction of the lens was the explanation of his case, as did Knapp,[11] who compared the diabetic toxin with nicotin and strychnin in the rapidity of its action.

Against the idea of alteration in the refractive index of the aqueous caused by the presence of sugar in this fluid, is the experiment of Hess[18] showing that 20 per cent. of grape-sugar is necessary to produce a myopia of 1 D., while Deutschmann[18] noted cloudiness and swelling of a lens after immersing it in a 5 per cent. sugar solution for a few hours. Obviously these two experiments are inconsistent with the idea that a considerable change in refraction, without cataract formation, is due to the presence of sugar in the fluid bathing the lens.

It seems to us that none of these theories will do. The problem is an interesting one, however, and no doubt will some day be solved. It offers opportunity for the internist, the physicist, and the physiologic chemist, as well as the ophthalmologist.

In conclusion, we wish to express our indebtedness to Dr. Emory Hill for his painstaking care in abstracting the published cases, and for other assistance in the preparation of this paper.

31 Washington Street.

ABSTRACT OF DISCUSSION

Dr. William Zentmayer, Philadelphia: Dr. Wescott's analysis of cases is particularly interesting, especially those that have a decrease in the static refraction. The cause is difficult to explain. There are other known ocular changes in diabetes which may throw light on the cause of the decrease in refraction in this affection. We know that we have paralysis of accommodation, cataract and myopia as the result of diabetes. Now as to the accommodation theory, Dr. Roberts' case certainly indicates that a paresis of accommodation may be the cause of the decrease in the static refraction, but there are many cases on record in which the static refraction was known before the change took place, particularly in Risley's, Carpenter's and Lundsgaard's cases, and it was again estimated under atropin, and after the atropin had passed off and it was shown that it was due to actual change in the static refraction. In my own case I did not know what the static refraction was before, but during the time there was no change in the accommodation. Recently the patient has had a second attack and again there was no paresis of accommodation. Paralyses of accommodation in other affections are not so fugacious; they are not so intermittent as these changes which occur in diabetes. Then again, there is no other way of explaining the increase in refraction except by the swelling of the lens. I think it is fair to infer that the change, as curious as it is, must be a lenticular one. Now a possible explanation of it has been given by Grimsdale. If there is an increase in the index of refraction of the cortical layers of the lens there is a more uniform index in the entire lens, and such a lens, of course, is less refracting than a lens which has a different index of refraction in its various layers. It seems to me that this is a plausible explanation of these cases.

Dr. C. D. Wescott, Chicago: I am indebted to Dr. Zentmayer for his interesting remarks. As Dr. Roberts is not able to be here and was expecting to say something with reference to his own case, I should like to call attention to one or two points, and I will read my excerpt of his case. It was reported under the title "Transient Cycloplegia Due to Glycosuria:"

A man, aged 51, the subject of diabetes, complained of inability to read with his old reading lenses and inability to see distant objects distinctly without lenses. Heretofore he had seen distinctly, without lenses for distance, and with +1.75 Sph., both eyes, for near. The sugar in the urine was now 3/8 per cent., whereas two weeks before it had been 7 per cent. R. E. V. =6/22.5; L. E. V. =6/15. Manifest refraction was: R. E. +1.75 Sph. V. =6/5; L. E. +1.75 Sph. V. =6/5. The addition of +2.25 Sph., both eyes, was necessary to bring the near point to 13 inches. No lesion was discovered in either eye. One month later his general health was improved. His last glasses had been satisfactory until within a few days, but now they blurred his distant vision and required that he hold his book too close to the eyes. Vision, with correction, was 6/12. Manifest refraction showed: R. E. +1.00 Sph. V. =6/5; L. E. +0.75 Sph. V. =6/5; with +2.25 Sph. added for near. Nine months later he reported that his eyes had gradually returned to their previous condition and he used his original lenses for reading (+1.75). It would seem to us that this is really a case of increase of hyperopia in the course of diabetes, with a very small amount of paresis of accommodation; for the patient required +1.75 Sph. for presbyopia before his diabetes, and only +2.25 Sph. added to his distance correction when first seen by Dr. Roberts; and when seen later his presbyopia remained the same, whi [illegible] had diminished 0.75 D. in the right eye and 1.00 I [illegible] th the hyperopia and the slight paresis of [illegible] prac-tically, allowing the use of the origi [illegible] 1.75).

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[15] Schmidt-Rimpler: Graefe-Saemisch Handbuch der gesamten Augenheilkunde 6, vii.

[16] Ztschr. f. Augenh., xix, 330.

[17] Smith, Priestley: Graefe-Saemisch Handbuch des gesamten Augenheilkunde, 11, vi.

[18] Hess: Quoted by Parsons: The Pathology of the Eye, iii, 929.

I venture to say that if Dr. Roberts had examined his patient under complete cycloplegia he would have no doubt in his mind as to my view of the case; for it then would have been most evident that there was a positive decrease in the refraction of the eye, with possibly a slight paresis of accommodation, followed by a return to the original condition with improvement in the patient's health.

Since coming to Los Angeles, I have been advised by telegram that Dr. Ellis has just seen an additional case of diabetes in a woman aged 40, with a sudden increase of hyperopia. The patient had been wearing +0.50 Sph. for distance, and +2.50 for reading. One week ago these lenses gave satisfactory vision. She now requires +2.00 Sph. with +0.50 Cyl. Axis horizontal for distance. Vision is 6/7, and accommodation normal for her age.

THE IMPORTANCE OF A CERTIFIED OR PASTEURIZED BUTTER *

ALFRED F. HESS, M.D.
NEW YORK

The title of my paper may seem somewhat out of the province of the activities of the Association of Certified Milk Commissions. However, the association has accomplished such laudable results in raising the standard of our milk-supply that it seemed only fitting that we should turn to it, in seeking a similar uplift of the standard of butter. It is indeed strange that in spite of our knowledge, the fruit of various investigations in this field, the attempts to provide a safe butter have been so feeble.

There is no need of repeating the evidence to the effect that cream contains tubercle bacilli even in larger amounts than the milk from which it is made. When the cream rises, whether it ascends by means of gravity or through the agency of centrifugal force, the fat globules carry with them a large proportion of the bacilli, which are filtered out from the underlying skim-milk into the cream and the sediment. The tubercle bacilli of the cream constitute the tubercle bacilli in the butter. It is difficult to state the percentage of contamination of the butter sold in large cities, but we probably shall not go far wide of the mark if we accept Cornet's[1] figure of 12 per cent. as an average. It has been demonstrated by Schroeder that these bacilli can maintain their virulence, in spite of the salt which the butter contains, for a period of three months. These facts naturally lead to a consideration of the subject which has been the main field of contention among those actively interested in the investigation of the cause of tuberculosis, namely, the importance of infection in man by the bovine type of tubercle bacillus, and of the alimentary tract as a portal of entry. It is not necessary in this place to discuss this question in detail. However opinions may vary on these questions, I think that almost all are now ready to accept the conclusion that the bovine bacillus constitutes a real menace to the welfare of infants and young children. The investigation in England by the British commission, the more comprehensive one in the United States by Park and Krumwiede, and that of the imperial Health Bureau of Germany force this deduction on us. So that it seems certain that in childhood, and especially in the first few years of life, bovine tuberculosis plays an important rôle.

So much for the contamination of butter by means of the tubercle bacillus. Investigations of recent years have directed us with ever-increasing frequency to the milk-supply as the source of epidemics of typhoid fever, scarlet fever, diphtheria and possibly some other of the infectious diseases. It is difficult to be precise in a discussion of scarlet fever; however, as regards typhoid fever we can adduce some interesting facts to illustrate the lesson of this article. If milk is infected with typhoid bacilli, these organisms will rise with the cream and be incorporated in the butter,[2] as we saw was the case with tubercle bacilli. It has, furthermore, been demonstrated by Bruck[3] that typhoid bacilli can maintain their viability and virulence in butter for at least twenty-nine days, and, indeed, multiply in this medium for the first few days.

In this connection it may be well to consider some phases of this topic which bear directly on our subject. It is claimed by some that the salting of the butter and its maintenance in cold storage kill the bacteria and render it a safe product. This question must still be considered an open one, in that a precise answer as to the exact influence of these factors on butter cannot be given. The consensus of opinion, however, seems to be that the addition of from 2 to 3 per cent. of salt, which is the usual salt content of commercial butter, has but a mild inhibitory effect on bacterial life or growth, and that in spite of the salt and the temperature of zero centigrade, bacteria have been found to multiply. These experiments record the results of bacterial counts of a gram of butter, and concern themselves with the estimation of lactic acid and other saprophytic bacteria. Such figures have little value for us, as we are concerned only with the viability of pathogenic organisms, such as the typhoid bacillus. As far as I have ascertained, a thorough study of this organism in this regard has not been made.

The attitude of the community toward butter and milk may be stated as follows: The people are warned not to drink milk unless it is certified or pasteurized; that is, unless it is pure or purified, on account of the danger of tuberculosis, typhoid, and other infectious diseases. Nevertheless they are urged to partake of butter which may well have these same pathogenic bacteria, but which by our silence we seem to concede is innocuous. It may be thought that the danger is slight because the amount of butter ingested is comparatively small. But, although this no doubt mitigates the evil, it does not by any means do away with it. I have shown elsewhere[4] that partaking daily of milk containing small numbers of tubercle bacilli may cause infection, whereas the same quantity given in one dose failed to produce tuberculosis. It should also be borne in mind that very young children, 2 years of age or younger, at a time when they are still very susceptible to infection by the bovine bacillus, consume considerable quantities of butter, and are thus exposed to infection.

When we come to consider the remedy of this evil, an evil which I realize is secondary to that of infected milk, we are met by the same difficulties and problems which beset us in the consideration of the milk problem—the ideal of a clean product which we can certify, and the practical makeshift of a safe product which we must permit. The certification of butter should impose the same requirement as the certification of milk, specifying

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* Read at the annual meeting of the Association of Certified Milk Commissions, Philadelphia, May 24, 1911.

[1] Cornet: Die Tuberkulose, part 1, p. 122.

[2] Hess: Middle Milk Mixtures, The Journal A. M. A., Aug. 14, 1909, p. 523.

[3] Bruck: Deutsch. med. Wchnschr., 1903, xxvi, 460.

[4] Hess: The Subsequent Health of Children Who Drank Milk Containing Tubercle Bacilli, The Journal A. M. A., May 6, 1911, p. 1322.

besides that the butter be made under clean and sanitary conditions. The demand for certified butter could never be general, for just as the price of certified milk is prohibitive to many a householder, so it would be in the case of the butter. But there are many who, if told of the dangers of the ordinary butter, of its contamination by tubercle bacilli and possible other pathogenic organisms, would be quite ready to pay the additional price for the surety of having a safe product for their children. It would be a butter for children, just as the certified milk is primarily a milk for infants and children. Some dairy which has butter-making machinery, especially one situated at some distance from the railway and therefore handicapped in selling its product as milk, might be induced to put a certified butter on the market. In proportion to the amount of milk used in making butter, butter is less expensive than milk; in fact, this is one of the exceptional cases in which the manufactured product brings less than the raw material. I hope to see this idea carried out in the near future, and do not doubt that some one will be found to enter this field.

Although a certified butter is out of the reach of the masses at the present time, a pasteurized butter, which is the other form of safe butter, is well within their reach. It is noteworthy that in spite of the fact that so many of us realize the advantages of a pasteurized butter, that we know that it is the staple butter in some countries, for example, Denmark, and is used in many other countries, that we have not been able to create a sufficiently strong demand to force the supply of this product. I need not add that pasteurized butter has no distinctive taste, and in color, texture and other qualities is no different from unheated butter. I believe that it is high time that it be rendered possible to purchase a labeled pasteurized butter, especially for the use of children. In New York a butter of this kind will be put on the market in the near future, and will cost five cents more per pound than the raw butter. This increase in price is permissible at this time; however, I do not believe that it will be found necessary when the demand is determined and found adequate. I believe that if our young children are protected from infection through butter we shall, in a very practical and simple way, be making another step along the road of preventive medicine.

154 West Seventy-Second Street.

THE DIAGNOSIS OF PANCREATIC DISEASE

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CINCINNATI

In spite of the progress made in the knowledge of the physiology of the pancreas, its diseases remain difficult and uncertain of diagnosis. The cause of this is apparent in that the clinical aspects of pancreatic disease are in most instances indefinite and not characteristic, and many of the laboratory aids have not proved efficient. My desire to test the value of the newer methods devised for diagnosis prompted some work along this line in the Klinik von Noorden, in which I was associated in the work with Docent Dr. Salomon.

The newer methods of determining the pancreas function for diagnostic purposes aim to test for the presence of the ferments in the stool. To facilitate rapid peristalsis after a breakfast of mixed food followed by an enema, calomel 0.2 gm. and phenolphthalein 0.5 (as recommended by Muller) prove very satisfactory.

The two ferments made use of in the determination from the stool of pancreas activity are trypsin and amylopsin and their absence from the stool would point toward pancreas obstruction or insufficiency.

To determine the presence or absence of trypsin, the Fuld-Gross method may be used or the methods of Muller[1] and Schlecht,[2] which latter is as follows: The stool is rubbed up with a small quantity of glycerin to prevent evaporation, and several drops of the mixture placed in Petri plates containing Loeffler blood-serum and heated to 50-60 C. for twenty-four hours. The high temperature prevents the growth of bacteria, but not the action of the enzymes, and the presence of softening and depressions in the serum would indicate trypsin digestion, varying in degree according to the quantity of the enzyme present.

The simplicity of this method would commend its use, but already Schlecht has reported negative findings in the fat-stools of icterus, in obstipation, bloody stools and stomach carcinoma, and Komarelli has reported like observations. Frank and Schittenhelm[3] contend that the *succus entericus* also contains a proteolytic ferment, which would seem to place a doubtful value on these tests for the trypsin content.

The Fuld-Gross-Goldschmidt method (reference below) requires a solution containing 1 gm. each to the liter of casein, chloroform and sodium carbonate. To 5 c.c. of this solution varying dilutions of stool filtrate are added in different test-tubes, or, in the absence of a fluid stool, 5 gm. of stool is rubbed up with 20 c.c. physiologic salt solution, centrifuged and filtered and added to the casein solution. The mixture is allowed to digest at 38 to 40 C. for twenty-four hours, and the end-result is tested by the addition of a 1 per cent. acetic acid solution, which causes a precipitate in the tubes, when digestion is incomplete. The Fuld-Gross method proved very satisfactory in our work in the hospital and was carried out at the same time as the Wohlgemuth[4] method for amylopsin. The method of Wohlgemuth requires a 1 per cent. solution (Kahlbaum's soluble starch), which is best prepared on a water bath for eight to ten minutes with considerable stirring. Similar dilutions of stool filtrate as in the Fuld-Gross method are added to 5 c.c. of the starch solution in test-tubes, toluol added and the whole digested for twenty-four hours at from 38 to 40 C. At the end of this time the test-tubes are filled to near the top with tap-water, one drop of tenth-normal iodin solution is added to each tube, and a blue color no longer appears in the tube when the starch has been entirely digested. The dilution of stool used for both the trypsin and amylopsin tests are the same and are made with physiologic salt solution. In dilutions of 1 to 10, 1 to 100, 1 to 1,000 they are sufficient for all purposes. Of each of these dilutions it is best to take 2 c.c., 1 c.c. and 0.5 c.c., which are added to the tubes containing either casein or starch. The quantitative estimation of the ferment content is reckoned from the tube containing the greatest dilution, which has still been able to transform the starch or casein. The estimation is made in units, one unit representing the ability of 1 c.c. stool filtrate to transform 1 c.c. starch or casein solution. Suppose that the tube containing 1 c.c. of the 1 to 1,000 dilution is the greatest dilution which can transform 5 c.c. of starch solution; then 1 c.c. of undiluted filtrate would thus be able to digest 5,000 c.c. of starch solution, which would represent 5,000 units, a normal finding. The number of units usually ranges between 500 and 5,000, though cases may show 10,000 units and even higher, and 100 units may be considered the minimum. In my tests the non-pancreatic cases did not fall below 250 units, while the greatest interest attached to those giving a smaller number of units, which pointed to a deficiency of pancreatic secretion.

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[1] Deutsch. Arch. f. klin. Med., 1907, xci; 1908, xcii.

[2] München. med. Wchnschr., 1908, p. 725.

[3] Zentralbl. f. d. ges. Physiol. u. Path. d. Stoffwechs., 1909, p. 881.

[4] Biochem. Ztschr., 1909, xxi

Wohlgemuth tied off the pancreatic ducts of a dog and found by his starch test that the stool contained a minimum quantity or practically no diastatic ferment. By means of a Thiry-Vella fistula, he found that the amylopsin of the *succus entericus* was very small in comparison with that of the pancreatic juice, and inferred that the amyloptic ferment present in the stool was in great part pancreatic.

Wynnhausen[5] worked with the Wohlgemuth methods, and in four cases of pancreas disease his findings were confirmative in giving results under 50 units. In two cases he worked simultaneously with the Fuld-Gross method and found low values in both tests.

Hirschberg[6] also found Wohlgemuth's method reliable in finding scanty diastatic ferment in the stool of pancreatic patients, at the same time finding by similar methods the increase of the ferment in the urine.

My clinical results with these methods may be given briefly as follows: My first attempts were with the Wohlgemuth methods of estimating the diastatic ferments in the stool. In the beginning the results were unsatisfactory and I soon detected the cause of this in the character of the cathartic used in order to obtain fluid stools. Rhubarb, cascara and the aperient waters frequently gave negative results, until calomel and phenolphthalein, as suggested by Muller, were used. In fifty non-pancreatic cases the stools showed ferment values ranging from 500 to 10,000 units. These cases included heart (compensated and uncompensated), diarrheas, stomach and intestinal neuroses, cardiospasm, organic nervous diseases, diabetes, and in nine cases of icterus, which were of special interest, the ordinary catarrhal icterus showed a normal range of value. A malignant jaundice which was suspicious of a pancreas obstruction, with much fat and muscle fiber in the stool, showed a value of 500 units, and at autopsy showed the disease limited to the bile passages and no pancreatic lesion. In a second case, which appeared at first malignant, 10,000 units were found, and pancreas disease was correctly excluded by subsequent history. The pancreas diseases were as follows: 1. Acute pancreatitis with necrosis, which came to operation in the Klinik Hochenegg, showed a value of 25 units. 2. Malignant icterus (Klinik von Noorden), 20, 25 and 100 units. Autopsy disclosed carcinoma of the pancreas head and of the bile-passages. 3. Malignant icterus (Klinik von Noorden), the patient operated on in the Klinik von Eiselberg, showed a value of 20 to 25. Exploratory operation revealed the entire region of the bile-passages, duodenum and pancreas head entirely matted together. No further exploration was attempted and the patient was taken home shortly after operation. 4. Acute pancreatitis (Klinik von Eiselberg), patient operated on four weeks previously, healed, with no disturbance of digestion or gross changes in stool, showed 5,000 units. 5. Pancreatic cyst operated on by Dr. Joseph Ransohoff (Cincinnati Hospital) gave 25 units.

These results would tend to show that considerable reliance may be placed on these methods.

Low unit values with both the Wohlgemuth and Fuld-Gross methods alike seem to point to a pancreatic obstruction or insufficiency.

The two tests mentioned have a rational basis and commend themselves also on account of their simplicity.

22 West Seventh Street.

DEATH OF FETUS DUE TO TWISTING OF CORD IN UTERO

H. W. FROEHLICH, M.D.
HIBBING, MINN.

The following case is reported with the idea that it may be of interest to some medical men who have had similar cases.

The patient was 18 years old, of Finnish nationality, pregnant for the first time, in good health and had always felt well. When six months pregnant, she noticed that there seemed to be no life. On examination no fetal movements could be detected. Rest was advised, and two days afterward labor pains came on. No effort was made to check them and in four hours the fetus, which apparently had been dead three or four days, was born. The cord was about 18 inches long. About 6 inches from the placental attachment, the cord had been twisted into a hard knot. From the placenta to the knot, the cord was normal. Beyond the knot to the fetus, the cord was beginning to shrink away and had been dead for a number of days. No other abnormal conditions were observed and to my mind it was merely a case in which the twist had shut off the blood-supply and killed the fetus. This patient lived in a second story and thus had to climb the stairs very often, also having to carry her own wood and water. This may have had something to do with the twisting of the cord.

New and Nonofficial Remedies

The following additional articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Their acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council. Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book "New and Nonofficial Remedies."

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that, so far as known, it complies with the rules adopted by the Council.

W. A. Puckner, Secretary.

LIQUID NITROUS OXIDE—Nitrosum oxidum liquefactum.—Liquid nitrous oxide is dinitrogen monoxide, N_2O, in the liquid state.

Liquid Nitrous Oxide is a colorless mobile liquid, boiling at –89.8 degrees C. and solidifying at –102 degrees C., and having a sp. gr. of 0.937 at 0 degrees C. Liquid nitrous oxide returns to the gaseous state when the pressure is reduced and the temperature raised. The gas obtained from liquid nitrous oxide should have the properties of and respond to the following tests: It should be colorless, have a faint odor and a slightly sweet taste; it should not be inflammable, but should support combustion; it should be soluble in one volume of water at ordinary temperatures. No reaction should occur when 4 liters of the gas to be tested is passed slowly through each of the following: barium hydroxide solution, neutral litmus solution, silver nitrate solution, potassium iodide solution containing starch solution and alkaline mercuric potassium iodide solution.

If nitrous oxide gas be shaken in a gas burette with an alkaline solution of pyrogallol, the contraction in volume should indicate not more than 2 per cent. oxygen.

If nitrous oxide gas, after removal of the free oxygen be exploded with hydrogen gas in a Hempel gas apparatus, the reduction in volume should be at least 94.9 per cent. of this oxygen free gas, indicating not less than 93 per cent. dinitrogen monoxide, N_2O, in the original material.

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[5] Berl. klin. Wchnschr., 190, No. 300; 1910, No. 11.
[6] Deutsch. med Wchnschr., 1910, No. 4.

If the above quantitative estimations be made in nitrous oxide gas, the residue of nitrogen gas should not exceed 5.5 per cent.

Actions and Uses.—Nitrous oxide gas causes anesthesia by direct influence on the central nervous system, as well as by the production of asphyxia. After a few deep inspirations, the face assumes a deadly pallor and the patient becomes unconscious. It raises the arterial blood-pressure. The death-rate from this gas, used as an anesthetic, is less than 1 to 500,000.

The gas derived from the liquid nitrous oxide is applicable to produce anesthesia for brief operations. For more prolonged anesthesia, admixture with oxygen is used. It is also used for the purpose of introducing anesthesia with ether or chloroform.

Dosage.—Liquid nitrous oxide is obtainable, under pressure, in steel cylinders. The liquid is allowed to evaporate in the cylinder and the gas is inhaled by the patient from a suitable inhalation apparatus.

Pharmaceutical Preparations Accepted for N. N. R.

The following dosage forms of accepted proprietary articles have been accepted for N. N. R.:

Cargentos Aseptic Vaginal Tampons.—Colloidal Silver Oxide Aseptic Vaginal Tampons. Aseptic wool tampons impregnated with 0.325 Gm. (5 grains) of Cargentos. The tampons are contained in No. 10 thin gelatin capsules. A silk cord is attached to the capsule, permitting the ready removal of the wool.

Cargentos Dusting Powder.—Colloidal Silver Oxide Dusting Powder. A mixture containing cargentos 10 parts, purified talcum and magnesium carbonate sufficient to make 100 parts by weight.

Cargentos Ointment.—Ointment of Colloidal Silver Oxide. An ointment said to contain cargentos 1 part with anhydrous wool fat 9 parts by weight, put up in collapsible tubes.

Therapeutics

ALOPECIA: BALDNESS

Several different forms of this condition have been described, of which the following are the types.

Alopecia congenitalia is an exceedingly rare condition in which a child is born without any hair. Microscopic examination of the skin in some cases shows an entire absence of follicles. In other cases the follicles are present, and after weeks, months, or possibly two or three years, the hair grows, although it is usually finer and thinner than in the average child of the same age.

Another variety is *alopecia senilis,* in which the loss of hair is an accompaniment and an indication of the general atrophy of the tissues throughout the entire body.

There is the disease called *alopecia areata,* which is characterized by a complete falling of hair from limited areas of the scalp or other hairy portions of the body. This is a distinct disease, and will not be considered in this connection.

There remains the form of *alopecia prematura,* in which the patient loses more or less of the hair to which he has become accustomed, but in which this loss is not associated with the changes characteristic of old age. This form of premature baldness is customarily divided into two classes; the idiopathic and symptomatic. In the idiopathic form few causes can be found for the occurrence, while in the symptomatic form there will be found some pathologic condition of the scalp, or some disease which has affected the general nutrition of the entire body. Under the latter head may be included the falling of the hair which so frequently follows typhoid fever, and which has recently been discussed at some length in this department. Omitting at the present time a discussion of the other forms of alopecia, a few words will be said in regard to the common form of premature alopecia.

Recalling the anatomy of the skin, it will be remembered that the hair grows from the hair follicle, at the bottom of which is the hair papilla, which is supplied with capillary blood-vessels and nerves, and from which the new cells are developed which form the hair. These at first are soft, and later become hard and cohere so as to form the normal hair. Under abnormal conditions when the general nutrition of the body is impaired, and when in particular as an incident of this general impairment of nutrition the nutrition of the hair papillæ is disturbed, these new cells do not undergo their normal development, but, remaining soft, the hair drops out. If the impairment of nutrition is not permanent, a new hair will form. If, however, the impairment of nutrition continues, the opening of the follicle may finally be closed up, and then no further development of hair from that follicle will take place.

Various causes may give rise to this interference with development; various infectious diseases, especially the exanthemata, may do so. Erysipelas is a common cause of such interference with nutrition, as is also pregnancy. Various forms of mental and nervous disturbance, such as shock or worry, may also interfere with the development of the hair.

The causes which have been enumerated are general causes. There are, furthermore, a series of causes which are local in their action. Among these may be mentioned, as the most prominent cause, the occurrence of dandruff, which in most cases is due to a cutaneous disease variously designated as eczema seborrhoicum or dermatitis seborrhoica. There is even now some difference of opinion as to the ultimate cause of this seborrheic condition of the scalp, some attributing it to a microscopic organism, and others denying that such a cause has been determined. It must be admitted that very many cases of dandruff are seen in which apparently there is no special tendency to falling of the hair, but, on the other hand, it will be found that a very large proportion of patients who are losing their hair in this premature way are suffering from some form of dandruff, generally the seborrheic form.

TREATMENT

The treatment of baldness, whether due to a local inflammation of the scalp or to the result of some general disturbance of nutrition, is a somewhat puzzling matter. The treatment adopted must be continued for several weeks or even months before a result of much importance can be observed. Obviously at first the constitutional condition of the patient should be carefully inquired into, and any disturbance of it should be promptly remedied. If care and worry are apparently important factors in the disease, these should be remedied as far as possible. If the digestion is not properly performed, measures should be adopted which will correct it.

Certain internal remedies have appeared to have some control over the nutrition of the skin and scalp. Perhaps none surpasses arsenic in this respect, and in many cases the use of this drug will seem to contribute to a favorable result. If anemia is present, iron may be combined with arsenic. For instance:

℞	Gm. or c.c.		
Arseni trioxidi	04		gr.⅔
Massæ ferri carbonatis	2	or	ʒss

M. et fac pilulas 20.

Sig.—Take one pill, three times a day, after meals.

Another drug which has appeared to have a selective action on the skin and scalp is sulphur, and in some cases this drug has been given with benefit, especially if there is constipation, or if there is observed a tendency to suppurative inflammation of the skin.

The question of local applications to the scalp is one which must be approached with some hesitation. The variety of drugs which have been recommended for application to the scalp to stimulate the growth of the hair is so great that one naturally feels suspicious in regard to the value of any one. This, however, must not discourage the physician from trying to select a suitable one which will prove of benefit to his patient. If dandruff is abundant on the scalp, one of the simplest applications is a solution of borax, with glycerin and water.

℞	Gm. or c.c.		
Sodii boratis	4		ʒi
Glycerini	25	or	fl.ʒv
Aquæ	ad 200		ad fl.℥vi

M. et Sig.—Shake, and apply externally twice a day.

This, like all applications designed for use on the scalp for the purpose of stimulating the growth of the hair, should be applied to the scalp and not to the hair. This may be accomplished by using a comb to part the hair, separating it so that the application may be made directly to the scalp, and when the application has been made along one part, making successive applications along other parts, until the application has been made over the entire scalp.

Another remedy which has been extensively used for the relief of dandruff is resorcin. This may be used in the form of either a lotion or an ointment.

℞	Gm. or c.c.		
Resorcinol	6		ʒiss
Alcohol	75	or	fl.℥ii
Aquæ	ad 200		ad fl.℥vi

M. et Sig.—Shake and apply to the scalp twice a day.

Or,

℞	Gm. or c.c.		
Resorcinol	50		gr.x
Adipis lanæ hydrosi	25	or	℥i

M. et Sig.—Rub into the scalp twice a day.

These remedies are especially useful when there is any evidence of inflammatory action in the scalp because of their soothing and anti-inflammatory action. In these cases remedies which are stimulating should be avoided. If there is no evident pathologic process going on in the skin except the falling of the hair, more stimulating remedies may be applied. Of these the most important are alcohol, quinin, cantharides, and ammonia. These, with resorcin, which has been already mentioned, are the fundamental ingredients of most popular hair tonics. Bay rum, a favorite application to the hair with many people, owes its pleasant effect largely to the alcohol contained in it.

The tincture of cantharides is often combined with alcohol and castor oil as in the following prescription:

℞	c.c.		
Tincturæ cantharidis	10		fl.ʒii
Olei ricini	5	or	fl.ʒi
Alcoholis	ad 100		ad fl.℥iii

M. et Sig.—Apply externally.

When corrosive sublimate is used the proper strength is half a grain to an ounce (0.03 gm. to 30 c.c.) of alcohol.

Ammonia may be used, as in the following prescription of Erasmus Wilson:

℞	c.c.		
Aquæ ammoniæ fortioris	10		
Chloroformi	10		
Olei amygdalæ expressi	10	or	āā fl.℥ss
Olei limonis	3		fl.ʒi
Alcoholis	ad 100		ad fl.℥iv

M. et Sig.—Apply by dabbing on the scalp with a small piece of cloth, but not with friction.

The hydrochlorid of pilocarpin may be used in the form of an ointment:

℞	Gm. or c.c.		
Pilocarpini hydrochloridi	1		gr.xv
Olei lavendulæ	1	or	♏x
Petrolati	10		ʒiiss
Adipis lanæ hydrosi	30		℥i

M. et Sig.—Use externally.

A sulphur ointment may sometimes be used with advantage.

PROPHYLAXIS

It is apparently little considered by the average individual that the hair should receive as particular care as do the teeth and nails. To be sure, it is the custom of most people to comb their hair, but this is generally done for the cosmetic rather than for hygienic effect. By improper care of the hair great harm may be done, and conversely, people who desire to preserve their hair in good condition should take pains to encourage its healthy growth. Many people overdo the matter of making applications to the scalp, applying strong alcoholic preparations or other so-called tonics too frequently. Others, with an excess of pains, bathe it too frequently, especially with cold water, as is the case with people who take a daily cold shower bath. Others indulge too frequently in the luxury of a shampoo. While occasional washing of the hair is beneficial, too frequent application of water to the hair does harm by withdrawing the natural oil from the hair and scalp. The best authorities advise shampooing the scalp not more frequently than once a week and not less frequently than once a month. Probably nothing better can be used on these occasions than Castile soap and warm water.

It is a common belief, and appears to be well founded, that too closely covering the head has a bad effect on the growth of the hair. The stiff hats so commonly worn by men at the present day, which fit so closely about the head, and which are worn by many so constantly, it can readily be believed would have a bad influence on the hair. In the first place, the tight binding of the scalp must interfere with the circulation through the scalp and around the hair papillæ; and in the second place, the space in the crown of the hat must allow a considerable quantity of air to become heated above the temperature of the body, and this also must have a bad effect on the nutrition of the hair.

While a certain amount of sunshine and fresh air is probably beneficial to the hair, on the other hand, it is probably better that the hair and scalp should be protected from constant exposure to the rays of the sun and to the wind and dust.

With women, the case is somewhat different, but they have their special unhygienic practices which must be mentioned and condemned, especially the curling of the hair by winding it about hot curling-irons or doing it up in curl-papers over night.

In women, if the hair is found to be cracking at the ends and becoming thin and unhealthy, the ends should be cut off. Most men habitually have their hair cut frequently. Whether this is of advantage or a mistake is not so easily decided. There are good arguments on both sides.

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INFANTILE SPLENIC ANEMIA AND KALA-AZAR

Among the affections whose etiology is still more or less obscure, the so-called blood diseases occupy a prominent place. It has long been acknowledged that some of these which we now consider as entities may in reality consist of a group of distinct diseases, closely resembling each other clinically, but independent in causation. One such instance, indeed, is well known—that of infection with *Bothriocephalus latus* and its resulting anemia, distinguishable from "primary" pernicious anemia only by the presence of the parasite. Another somewhat similar instance has apparently been brought to light by a group of Italian investigators, in the splenic anemias of childhood. These may be differentiated clinically into a febrile and afebrile type; and in the former, at least as found in the Mediterranean valley, a parasite has been demonstrated with remarkable constancy. In 1905, Pianese first announced the finding, in various organs of patients with this disease, of organisms morphologically indistinguishable from the Leishman-Donovan bodies of kala-azar. Since then various investigators have amply confirmed this, and an inspection of the accumulated data as given in a recent article by Jemma and Di Christina,[1] leaves little doubt as to the accuracy of their conclusions. Strangely enough, the cases so far reported are limited to a rather narrow geographic environment—Sicily, the Liparic Islands, Calabria, Tunis and Malta; one case has recently been found in Lisbon. That the real distribution will finally prove to be so restricted is of course improbable; with wider dissemination of knowledge concerning the disease, a much wider range is to be expected, more especially as the two affections most likely to be confused with it, malaria and Malta fever, infest much the same districts. The peculiar form of infantile splenic anemia with fever, known as *ponos,* which is endemic in the two small islands of Spezzia and Hydra near the Peloponnesus, is clinically indistinguishable from this infection and proper investigation will very probably prove their identity.

Clinically, the disease is distinguished by splenic enlargement, anemia and irregular fever, and less characteristically by gastro-enteric disturbance, usually diarrhea, enlargement of the liver, in some cases hemorrhages from the mucous membranes and under the skin, and edema of the feet and ankles. The splenic swelling is very hard and may extend across the abdomen. The anemia may be quite marked and is characterized by a peculiar waxy pallor, though at times the skin may be earth-colored or subicteric. The color-index seldom varies much from unity; nucleated red cells are absent or very rare. Leukopenia, with predominance of mononuclear cells, seems to be the rule, though at times leukocytosis occurs. The fever is almost typical, inasmuch as there may be several exacerbations and remissions in the course of a single day. The disease, as a rule, runs a chronic course, lasting over months or years, and is subject to marked remissions, when fever is absent and the general condition improves temporarily. Although, as its name indicates, it was at first believed to be limited to infancy, recent cases have been reported in adolescence and early manhood. The ultimate diagnosis rests, of course, on finding the parasites, most conveniently as a rule by splenic puncture; their presence in the peripheral blood is disputed and is at best very rare.

As in the case of kala-azar, little or nothing is known of the contributing etiologic factors. Its sporadic occurrence, in neighborhoods apparently free from previous cases, precludes the idea of direct contact infection; and this, in connection with the protozoan character of the parasite, has directed attention to the possibility of intermediate animal hosts. The great majority of cases have come from among the poorer classes, mostly peasants and fishermen, all of whom are possessors of large numbers of dogs. Investigation of spontaneous infection of these has led to diverse results. In Tunis four of 253 animals were found infected, while in Palermo, like Tunis a site of the disease, none were found in 300 investigated. On the other hand, in Rome, where no human cases have hitherto been reported, sixteen of sixty dogs gave positive results. In regard to the possibility of an insect carrier, Patton's work on kala-azar, in which he found the Leishman-Donovan bodies infecting the bedbug, is of interest.

The identity of this type of splenic anemia with kala-azar is still a matter of dispute, which probably will not be settled until our knowledge of the parasites is considerably increased. In favor of the acceptation of a common organism for the two infections are the following points: first, the identity in morphology and distribution in the host of the parasites; second, the similar pathologic changes—splenic and hepatic enlargement, alterations in the bone-marrow, and intestinal ulceration; third, the chronic course, extending in both over months. On the other hand, the organism of the Mediterranean disease has been cultivated by one observer to indefinite generations on the Novy-MacNeal medium, while that of kala-azar has been so far grown only on citrated blood and for not over three generations. The Mediterranean organism has been inoculated into dogs, though, it is true, with some difficulty. Attempts to inoculate these animals with the organism of kala-azar have so far been unsuccessful, nor have any cases of spontaneous infection been found in some 1,000 dogs investigated. And finally, the almost complete limitation of the Mediterranean infection to childhood, and the occurrence of kala-azar at all ages, might argue against their identity.

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[1] Jemma and Di Christina: Centralbl. f. Bakteriol., u. Parasitenk., 1911, lix, 109

It is not likely that any considerable number of cases will ever be found in the United States, where climatic and hygienic conditions are so different. Sporadic cases may quite possibly occur, however, and it behooves our American practitioners, particularly those whose work leads them much among the Italians, to be on the alert for them.

CIVILIZATION AND THE TROPICS

It has long been a matter of popular belief that tropical or subtropical regions are unsuited to the higher developments of civilization, and that the whip of more rigorous conditions is needed to awaken the sleeping elements of progress in man. The present-day distribution of civilization would seem to support this view. With few exceptions our most progressive communities are located in temperate regions; and, at least until recently, any invasions of the tropical and semitropical zones by representatives of our northern civilization have either suffered rapid decline, or have been kept vigorous only by constant reinforcement from their source.

It would seem that this superiority of the colder latitudes as a place for human development has not always existed. Almost without exception, the parent sources of human progress, so far as one can trace them, have been in tropical or at least in subtropical countries. Mesopotamia in Asia, Egypt in Africa, the eastern Mediterranean valley in Europe—all represent sites of apparently original civilizations, and are located well within the warmer zones. So, too, our indigenous American civilizations have been located wholly in the warmer latitudes of the continent. The mysterious relics of Central America and Mexico on the one hand, and of Peru on the other, are so situated. It is true that in this latter case the altitude is such as to change climatic conditions; but there is evidence to show that marked elevation has taken place here comparatively recently, and that the more ancient remains in this region actually antedate this elevation.

If, then, the tropics, originally the source of human culture, have been incapable of maintaining it, some change in condition must be responsible. One probable explanation, in view of recent experience, lies in the spreading of the peculiarly tropical diseases, due to the increased exchange of people and products so characteristic of later years. The decline of Greece and Rome has been ascribed to the introduction of malaria along with African slaves, and in our own continent we have an even better-established instance of this sort. Torquemada, speaking of Yucatan, itself a site of prehistoric American civilization, says: "Men die of pure old age, for there are none of those infirmities that exist in other lands; and if there are slight infirmities, the heat destroys them and so there is no need of a physician there." But with the coming of the white man and negro and their alien diseases, conditions changed until southern Mexico and Central America became notorious as hotbeds of tropical fevers.

With progress in sanitary science, this position of the warmer latitudes promises to undergo another alteration. Already in Cuba and Panama the possibility of mastery over these diseases has been shown, and it is only a matter of time until the methods and results attained there have a world-wide application. When this has occurred, will the warmer latitudes resume their old relationship as forcing-beds of human progress, or will they retain their present minor importance? It may well be, even with elimination of special disease, that the warmer climate will be unsuited to the white man, with his centuries of habituation to a colder sun. In that case, will our darker-skinned brother, free from the handicap of disease, take up the torch in his turn again? The problem has its philosophical as well as practical interest, and on the manner of its solution will depend in large measure the fate and character of future man.

THE PURITY OF ANESTHETICS

While pharmaceutical chemists work untiringly in attempting to discover new compounds that may be of use in medicine, there seems to be a disinclination to study those already discovered with a view to improving their quality. At least, those chemists who could render most efficient service are but rarely attracted by such work. The result is that studies on the purity of drugs in common use are usually left to those who are commercially interested in them or to the overworked federal or state authorities who, as best they can, safeguard the health of the people by watching for the grosser adulterations.

But many drugs and medicines are sorely in need of a careful scientific study, both as to their purity and as to the effects of various impurities on their medicinal action. The painstaking investigations which these drugs require might well attract the scientific workers in universities. The composition of anesthetics—drugs in which small amounts of impurities may have serious effects—is an illustration. We have previously called attention to the valuable service rendered by the Council on Pharmacy and Chemistry, when it secured the investigation of commercial brands of compressed oxygen.[1] In the Propaganda for Reform department of this issue, the Council gives the results of an examination of commercial nitrous oxid, by Professor Smith of the Lewis Institute.

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[1] Smith, W. R., and Leman, E. D.: THE JOURNAL A. M. A., March 18, 1911.

In this connection, attention should also be called to similar work that is being independently pursued by Professor Baskerville of the College of the City of New York. Professor Baskerville is making an exhaustive study of the purity of oxygen and of anesthetics—a piece of work which should do much to increase our knowledge of anesthesia, and which should materially lessen the accidental deaths arising therefrom. So far he has published reports on ether, oxygen and nitrous oxid, and it is interesting to note that his findings and the tests for purity which he proposes for compressed oxygen and liquid nitrous oxid,[2] are in close accord with the findings of Professor Smith and the standards adopted by the Council on Pharmacy and Chemistry of the American Medical Association. Let us hope that other investigators may realize that a reinvestigation of many old subjects is well worthy of their attention and perhaps of vastly more importance to public welfare than the ceaseless search for new substances.

Current Comment

TEXAS DECISION ON "UNPROFESSIONAL CONDUCT"

In another department[3] appears an abstract of the decision of the Court of Civil Appeals of Texas, affirming the action of the State Board of Medical Examiners revoking the license of J. Lafayette Berry. According to the evidence in the case, Berry advertised himself as a physician especially skilled in the treatment and cure of gall-stones. To those confiding persons who paid him in advance as much as they were able to secure he administered olive oil and epsom salts, thereby converting these persons into perambulating soap factories, guaranteed to produce large quantities of "gall-stones" on short notice. This fraud has already been exposed in The Journal.[4] The court held that such methods were "grossly unprofessional and dishonorable, and of a character likely to deceive and defraud the public," that the board was warranted in revoking Berry's license and that the lower courts were right in sustaining the action of the board. The attorneys for the defense pleaded that the law did not define unprofessional and dishonorable conduct; that representatives of other "schools" of medicine than the defendant were not competent to testify against him and that violation of the "code of ethics" of the medical profession was not a crime in Texas. The court, however, made short work of these pleas, saying, "His [Berry's] testimony alone was sufficient to justify the jury in finding that his treatment was a fraud and that he knew it and also knew that the material passed by his patients which he pronounced gall-stones was not actually gall-stones. . . . When the unprofessional conduct of a member of the medical profession is of such a character as to deceive and defraud the public then the law denounces such conduct and strips the offender of the means which makes it possible to impose on the credulous and unwary." J. Lafayette Berry has, we are informed, disappeared from Texas since his conviction. We do not know in what state he will resume the wholesale soap business, but we respectfully commend him to the tender care of the various state boards of medical examiners, feeling sure that sooner or later J. Lafayette will once more yield to a desire to relieve his victims of "gall-stones" (and cash). Should he at any time put in an appearance some interesting facts regarding his professional history may be secured from the attorney for the Texas State Board of Medical Examiners.

A TRUST WHICH DESERVES ENCOURAGEMENT

In a recent speech in the United States Senate, Hon. Robert L. Owen of Oklahoma, in an argument for a national Department of Health, said, after reading the recent editorials of *Collier's Weekly* into the record: "Mr. President, the American Medical Association has published at great length scientific and careful analyses of most of the nostrums and patent medicine frauds of this country. They have given wide publicity to it and in that way they have excited the violent animosity and hostility of the patent medicine people so that the declaration is made by them that the medical profession comprises a trust. In point of fact, if the American Medical Association forms a trust and if they are concerned in establishing a Department of Health with a view to preventing sickness, which would be the purpose of the Department of Health, they would be engaged in tearing down their own business; they would be engaged in depriving themselves of their patients from whom they make their living. It would be the only trust in existence which is concerned in diminishing its own revenues and destroying its own financial foundation. Such a trust as that is a very noble trust and one that deserves encouragement." It might also be of interest to our readers to know that when Senator Owen asked permission to insert the *Collier* editorials in the record, Senator Gallinger of New Hampshire was the only member of the senate who objected. Senator Gallinger is also the only member of the United States Senate who claims a medical degree.

THE PROGRESS OF CREMATION

Cremation in the present-day manner seems to have had its inception in 1866. There are now about eighty crematories in Europe; twenty-two are in Germany, seven in Switzerland, and thirty in Italy. About 13,000 bodies were cremated in Europe during 1909. Many Americans have died in Europe, whose bodies have been cremated, the ashes having been sent to their American homes for inurning or burial. In 1874 the Cremation Society of England was founded, Sir William Thompson being made its first president. There are now at least thirteen crematory furnaces in England in which, during 1909, more than 800 bodies were burned. Cremation is thus a legal procedure in that country. In the United States 13,012 cremations were recorded between the years 1876 and 1900. The number of crematories is steadily increasing; it is not rare to see among the tombs in cemeteries, columbaria, where the ashes of other dead are inurned. In Boston the idea of substituting crematories for potter's fields has long been agitated; this might well be done in all large cities, with obvious advantages and with no essential disadvantage of any kind whatever. At quarantine in New York harbor the bodies of immigrants who have died of infections are (in accordance with the statutes) burned on Swinburne Island in the lower bay; though this is not done if the relatives have religious scruples against cremation. In New York state a person may direct what is to be done with his body, provided the disposal be consistent with propriety and decency. And such is no doubt the prevailing sentiment and legal status of the matter in American communities.

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[2] Jour. Industr. and Eng. Chem., July and August, 1911, pp. 471 and 579.

[3] Medicolegal Department, p. 582.

[4] Fruitola, The Journal A. M. A., Sept. 24, 1910, p. 1128; also April 16, 1910, p. 1314.

Medical News

CALIFORNIA

A New Case of Plague.—A case of bubonic plague, said to have been transmitted by ground squirrels, is reported from Contra Costa County. The patient, 7 years of age, is reported to have died July 26, after having been scratched and bitten by a ground squirrel.

Changes in Stanford Faculty.—The following appointments have been made in the Medical Department of Leland Stanford Jr. University: Dr. Thomas Addis, Carnegie Research scholar, F.R.C.P., Edinburgh, assistant professor of medicine, to have charge of the work in clinical chemistry; Dr. James Eaves of Edinburgh and Guy's Hospital, London, instructor in surgery, to have charge of surgical pathology; Drs. George Lyman, W. H. Banks, William R. P. Clark, Walter Schaller and W. H. P. Luttrell, assistants in the medical dispensary, and Drs. W. Winterberg and Isaac Walton Thorne, assistants in the surgical dispensary. Provision has also been made for the appointment of an academic professor of obstetrics and gynecology.

Personal.—Dr. Fred Baker, San Diego, who went to Brazil as physician of the Leland Stanford Jr. university expedition, expects to return by the way of Panama, next month.——Dr. Phil. Abbott, Piedmont, has returned from Europe.——A bomb was exploded on the front porch of the home of Dr. Charles A. Davis, Pasadena, July 16.——Dr. William V. Brem has accepted the chair of pathology in the University of California, Los Angeles, and will open a clinical laboratory in connection with Dr. Avrum H. Zeiler.——Dr. P. S. Goodmann, Sutter Creek, is recovering slowly from burns sustained a few days ago when his sanatorium was burned.——Dr. John Wesley Trueworthy is reported to be critically ill at his home in Los Angeles.

COLORADO

Church Opens Hospital.—The Methodist Church of Colorado Springs has rebuilt and opened Bethel Hospital at a cost of $25,000.

Opium Smuggled.—Custom officers report that large quantities of opium are being smuggled into Pueblo, Colorado Springs and Denver by proprietors of opium dens. In a raid lately made by the Denver police, 125 pounds of opium was found and confiscated.

Personal.—Dr. and Mrs. Edward Jackson, Denver, are spending the summer in Great Britain.——Dr. Perry F. Perdue, Sterling, who was recently operated on for appendicitis, is convalescent.——Dr. Lewis E. Lemen and Dr. Josiah N. Hall, Denver, and Dr. Vivian Russell Pennock, Longmont, have resigned from the State Board of Health.

GEORGIA

University of Georgia to Assume Control of the Medical School at Augusta.—The bill authorizing the University of Georgia to take over and assume full control of the Medical College of Georgia, Augusta, was passed by the Georgia legislature and has been signed by the governor. This will mean extensive improvements in the medical school at Augusta.

IOWA

Health Train for Iowa.—The State Board of Health is planning to equip a state health train which will commence a thorough propaganda on the lines initiated by Louisiana. The chief purpose will be to bring into the home knowledge of more sanitary methods of living, to give practical everyday health hints for the home, and to spread the antituberculosis campaign.

Personal.—Dr. David Carson, Council Bluffs, has been elected secretary of the Council Bluffs Medical Association, vice Dr. John Frederick Sprink, deceased.——Dr. John H. Crippen, Waterloo, is reported to be critically ill at his home.

KANSAS

State Board Elects.—At the June meeting of the Kansas State Board of Medical Examiners, Dr. Albert S. Ross, Sabetha, was elected president and Dr. Henry A. Dykes, Lebanon, secretary.

Personal.—Dr. Samuel M. Myers, Potter, is reported to be seriously ill as the result of an automobile accident in Easton, July 26.——Dr. Willard A. Phares, Wichita, has returned after a year abroad.——Dr. William T. McKay, Arkansas City, for several years physician to the Chilocco Indian School, has resigned.

Does Not Approve Madstone.—At the request of Dr. Samuel J. Crumbine, secretary of the State Board of Health, the attorney general has ordered the arrest of the owner of a madstone in Hutchinson, if he endeavors to use it in an effort to cure a boy who was bitten by a dog in Winfield a few days ago. The county authorities have been instructed to find the boy and have him sent to the State University Hospital, Rosedale, where Pasteur treatment will be administered.

MARYLAND

Baltimore

New Laboratory Building.—A three-story building will be erected in the rear of the Baltimore Medical College, 22 by 68 feet, and at a cost of $3,000, to be used for laboratories.

Personal.—Dr. G. Halstead Boyland, who is now traveling in Europe, sails for home, August 16.——Dr. Christian Deetjen, who recently underwent an operation for prevention of cancer of the skin due to exposure to *x*-rays, is reported to have recovered.——Dr. Thomas C. Bussey, Texas, Baltimore County, is reported to be critically ill on account of a cerebral hemorrhage.——Bishop Luther B. Wilson, M.D., who has been seriously ill with fever contracted in Portuguese East Africa, is reported to be convalescent.

Corrections.—Attention has been called to three errors in the news from Maryland: In the item "Portrait of Old Physician," Dr. William J. Todd, Mount Washington, is the chairman of the committee, and not Dr. William Tarun of Baltimore, as stated on page 401 of THE JOURNAL of July 29, and the name of the society should be "Baltimore County Society" and not "Baltimore Medical Society."——In THE JOURNAL of August 5, page 488, the item entitled "Fund Raised for Pathology" states Dr. John Randolph Winslow as the one through whose efforts a large sum of money was added to the maintenance fund. The credit of this work should be given to Dr. Randolph Winslow.

MICHIGAN

Upper Peninsula Physicians Meet.—At the annual meeting of the Upper Peninsula Medical Society, held in Escanaba, July 27-28, the following officers were elected: president, Dr. Charles L. Girard, Escanaba; vice-presidents, Drs. Edward Sawbridge, Stevenson, and Alfred W. Hornbogen, Marquette, and secretary, Dr. Calvin R. Elwood, Menominee. Menominee was selected as the next place of meeting.

New County Societies.—The physicians of Cheboygan met July 25, and organized the Cheboygan County Medical Society. The following officers were elected: president, Dr. Wilbur F. Reed; vice-president, Dr. Willis E. Chapman, and secretary-treasurer, Dr. Charles B. Tweedale, all of Cheboygan.——Alpena County Medical Society has been reorganized with the following officers: president, Dr. James D. Dunlop; vice-president, Dr. Edward E. McKnight, and secretary-treasurer, Dr. Clarence M. Williams, all of Alpena.

MISSOURI

Personal.—Dr. Norman F. Terry has been elected president; Dr. Theodore A. Coffelt, vice-president; Dr. Robert L. Pipkin, secretary, and Dr. Lee Cox, treasurer, of the Springfield Hospital Association.——Dr. and Mrs. Joseph J. Carter, Weston, have gone abroad.

Changes in State Hospital Staff.—The board of managers of State Hospital No. 4, Farmington, has elected Drs. William S. Hutton, Fornfelt, and John A. Tiller, Bloomfield, assistant physicians at the institute, vice Drs. Henry Lloyd and F. S. Weber.——Dr. James A. Waterman, head physician of the State Penitentiary, Jefferson City, has been elected superintendent of State Hospital No. 4, Farmington, vice Dr. Robert S. McGee, Green City, appointed assistant superintendent of State Hospital No. 1, Fulton.

Medical Staff Assigned.—At the regular meeting of the board of control of Levering Hospital, Hannibal, the following assignments for the year were made: physician in charge, Dr. John N. Baskett; attending surgeon, Dr. Thomas Chowning; consulti [illegible] Henry L. Banks and Charles E. Paxon; [illegible] Dr. Elmer E. Waldo; consulting physicians, Drs. John J. Farrell and W. Cloyd Guss; attending gynecologist, Dr. William H. Hayes; consulting gynecologists, Drs. Isaac E. Hill and Richard M. Winn; attending obstetrician and pediatrist, Dr. John J. Farrell; consulting obstetricians and pediatrists, Drs. William H. Hays and Thomas C. Procter; attending genito-urinary surgeon, Dr. Richard Schmidt; consulting genito-urinary surgeons, Drs. James F. Cooper and W. Cloyd Guss; pathologist, Dr. Mary S. Ross; attending oculist and aurist, Dr. James S. Howell; consulting oculists and aurists, Drs. Edward T. Hornback and Ulysses S. Smith, and roentgenologist, Dr. Isaac E. Hill.

St. Louis

Medical Reserve Corps Organized.—The officers of the Medical Reserve Corps, U. S. Army, located in St. Louis, met July 12, and organized the St. Louis Society, Medical Reserve Corps U. S. Army, adopted a constitution and by-laws and elected the following officers: president, Lieut. Harvey G. Mudd; vice-president, Lieut. Walter C. G. Kirchner; secretary-treasurer, Lieut. William H. Luedde, and executive committee, Lieuts. William A. Hardaway, Amand N. Ravold and Frederick C. E. Kuhlmann. At a special meeting of the society held at Jefferson Barracks, July 12, Lieut.-Col. Jefferson R. Kean, M.C., U. S. Army, outlined the history of the development of the Medical Reserve Corps, and detailed its purposes and functions.

MONTANA

Personal.—Dr. W. A. Halbush, Cut Bank, has been appointed local surgeon of the Great Northern System.——Dr. John McIntyre, Butte, was seriously injured recently by being thrown from his carriage.——Dr. Albert F. Longeway, Great Falls, has been elected vice-president of the University Club.——Dr. J. Rudolph E. Sievers and family, Butte, are spending the summer abroad.

NEBRASKA

Personal.—Dr. William D. Gibbon, Lorton, was seriously injured in an automobile accident, July 13.——Dr. Leo A. Dermody, Omaha, was operated on for appendicitis, July 25.

New Officers for Board of Secretaries.—The Board of Secretaries of the State Board of Health has reorganized with the following officers: president, Dr. Herschell B. Cummins, Seward; vice-president, Dr. E. Arthur Carr, Lincoln; secretary, Dr. Clifford P. Fall, Beatrice, and treasurer, Dr. Porter F. Dodson, Wilber.

Quarterly Meeting of County Society.—At the third quarterly county meeting of the Dawson County Medical Society, held at Cozad, June 30, the address of the evening was given by Dr. Harry M. McClanahan, Omaha, who spoke on "Summer Diseases of Children." The next meeting will be held at Cozad in October.

State Sanatorium Purchased.—The Grothan Sanatorium, Kearney, known as Elmwood Place, has been purchased by the state as a tuberculosis sanatorium for $24,000. The remainder of the appropriation of $40,000 will be used for the necessary remodeling and improvements. An appropriation of $10,000 has also been made by the legislature for maintenance.

NEW YORK

Gift to Hospital.—Mrs. Harriet M. Biglow has given $1,000 to be added to the endowment fund of the Corning Hospital. This institution now has an endowment fund of $37,000.

Food Commission Appointed.—Governor Dix has appointed a New York Food Investigating Committee. In addition to a number of lay members Dr. Eugene Porter, State Health Commissioner; R. A. Pierson, State Commissioner of Agriculture; Dean Bailey, Director of the State College of Agriculture, and Whitman H. Jordan, Director of the New York State Agricultural Experiment Station, have been appointed to serve. All members are to serve without compensation and are authorized to inquire into the purity, prices, production, distribution and consumption of foodstuffs and farm and dairy products and to recommend remedial legislation next year.

New York City

Personal.—Dr. Hubbard W. Mitchell and Dr. and Mrs. Livingston Farrand have sailed for Europe.——Dr. George Gibier Rambaud was seriously injured in an automobile accident near Poughkeepsie on August 2.

Danger from Cholera Passed.—There were on August 5 only three cases of cholera remaining on Swinburne Island, while two weeks earlier there were eighteen cases. During this time fifteen patients have been discharged as cured. The Health Officer of the Port, Dr. Doty, expresses the belief that the danger of a cholera invasion is at a minimum.

Fewest Deaths in Thirteen Years.—The mortality for the week ended July 29 is the lowest, for a corresponding week, reported since 1898, being 14.10 per 1,000 and is 23 per cent. less than for the corresponding week of last year. The decrease occurred in all age groups. The deaths of infants numbered 375 as compared with 575 for the corresponding week of last year.

NORTH DAKOTA

Begin Work on Sanatorium.—The board of trustees of the state tuberculosis sanatorium, to be located at Dunseith, met July 19 and decided on plans for the building which is to cost $25,000, and which will be erected as soon as practicable. The building will be 42 by 50 feet, and two stories and a basement in height. In addition a cottage to cost about $3,000 will be erected, containing outdoor sleeping-rooms for patients.

New Examining Board.—The governor has named the following physicians as members of the State Board of Medical Examiners, following the recommendations of the North Dakota State Medical Association: Drs. Henry G. Woutat, Grand Forks; Arthur G. Patterson, Lisbon, and Francis R. Smyth, Bismarck, for one year; Drs. Albert W. Skelsey, Fargo; Francis Peake, Jamestown, and George M. Williamson, Grand Forks, for two years; and Drs. Paul Sorkness, Fargo; Alexander J. McCannel, Minot, and John E. Countryman, Grafton, for three years.

OKLAHOMA

Personal.—Dr. John W. Riley has resigned from the health board of Oklahoma City.——The office of Dr. Daniel David Roberts, Nashville, was burned in a fire which caused a loss of $15,000 to that village recently.——Drs. Richard Stephen McCabe and George Hunter, Oklahoma City, have been appointed assistant city physicians of Oklahoma City, vice Drs. Joseph T. Martin and Robert Elmore Looney.——Dr. Albert R. Hughes, Indiahoma, has given up the practice of medicine to return to his former profession of the law.

OREGON

New Nurses' Home.—The site for the nurses' home at the Multnomah Hospital, Portland, has been selected. The building will be on ground owned by the county and will cost $13,340.

Personal.—The ranch home of Dr. George Calvin Skinner, Hamilton, O., at Hood River, Ore., was burned to the ground, July 27.——Drs. Andrew C. Smith, Rupert J. Chipman and George Burnside Story have been reappointed members of the Portland Board of Health and Dr. Glenn W. Wheeler has been retained as health officer.

PENNSYLVANIA

Anti-Spitting Law Observed.—State Health Commissioner Dixon notes with satisfaction that in the stations of the state the railway platforms are perfectly clean and free from spit, showing that the railway companies are enforcing the state anti-spitting law and the people also are observing it.

Personal.—Dr. James M. Torrence, Indiana, is reported to be seriously ill with appendicitis.——Dr. Evan J. Groom, Bristol, was thrown from his carriage in a collision with an automobile and was seriously injured.——Dr. David Nathan, Norriston, had a narrow escape from drowning in Perkiomen Lake, July 26.

Governor Appoints Trustees.—Governor Tener has appointed the following as trustees of the State Institution for the Feeble-Minded of Eastern Pennsylvania: Dr. Joseph Kerr Weaver, Norristown; John B. Lober, Philadelphia; John P. Crozier, Upland; Henry F. Walton, Philadelphia, and Dr. U. G. Gifford, London Grove.

Honors to State Board President.—The honorary degree of Doctor of Science was conferred on Dr. Henry Beates, Jr., Philadelphia, for many years president of the board of medical examiners of the state, by Washington and Jefferson College.——At a meeting of the board of medical examiners, held July 28, at Atlantic City, N. J., resolutions were adopted setting forth the regret with which the board noted the resignation of Dr. Beates, wishing him a long and honorable career and hoping that he may be able to see his high ideals fully realized.

Philadelphia

Bequest.—The will of the late Phoebe Woodward devises that $5,000 be placed in trust and the income paid to a sister during her life and at her death, the principal be given to the Episcopal Hospital for the endowment of a free bed in the name of David and Phoebe Woodward.

Typhoid Outbreak Not Alarming.—Although forty-six cases of typhoid fever were reported to the Health Bureau during the week ended August 5, Dr. Andrew A. Cairns, Philadelphia, chief medical inspector, says that there is no cause for alarm as an increased number of cases is always looked for at this time of year when vacationists return to the city.

Reports on Sane Fourth.—At the meeting of the Citizen's Committee held at City Hall on July 27, it was announced that, as a result of the movement for a Sane Fourth, there were but four cases of tetanus from firecracker injuries this year, none of which was fatal. A resolution was unanimously adopted for a permanent citizens' committee to arrange Independence Day celebrations.

Personal.—The following physicians have sailed for Europe: Drs. John Norman Henry, Frederick P. Henry, John McLernon, Albert C. Sautter, James M. Anders, L. Webster Fox, George E. de Schweinitz and Irwin A. Fries.——Governor Tener has appointed Dr. Edgar F. Smith, Provost of the University of Pennsylvania, representative of Pennsylvania at the International Congress of Applied Chemistry in Washington and New York, September, 1912.

Local Druggists' Association Want Wiley.—At the meeting of the Philadelphia Association of Retail Druggists, held on August 4, a resolution was adopted urging President Taft to retain Dr. Harvey W. Wiley, chief chemist of the United States Department of Agriculture, in his present position. During the meeting, Christopher Kock said that another crusade would be started in this city against the sale of opium, morphin and cocain. The State Pharmaceutical Board has been collecting evidence against the alleged sale of the drugs and is following out clues.

RHODE ISLAND

Bequest.—By the will of the late Oliver Henry Arnold, Providence, Brown University received a bequest of $85,000.

Medicolegal Society Organized.—The Medicolegal Society of Rhode Island, composed of lawyers, physicians, coroners and others interested in medical jurisprudence, was organized in Providence, July 20. Judge Benjamin M. Grim, Cranston, was elected president, Hon. Daniel S. Latham, vice-president, and Dr. Carle R. Doten, secretary-treasurer, all of Providence.

District Meeting.—At the annual meeting of the Woonsocket District Medical Society the following officers were elected: President, Dr. William Francis Barry, Woonsocket; vice-president, Dr. Joseph T. Roswell, Woonsocket; secretary, Dr. Joseph Edgar Tanguay, Woonsocket; treasurer, Dr. George R. Smith, Woonsocket; councilor, Dr. John J. Baxter, Woonsocket; delegate to the state society, Dr. James A. King, and censors, Drs. Edgar F. Hamlin, Slatersville, and Joseph H. Boucher and Edward N. Kingsbury, Woonsocket.

SOUTH CAROLINA

Secretaries Elect.—At the annual meeting of the Association of Secretaries of County Medical Societies, Dr. Claude Clinkscales Gambrell, Abbeville, was elected president, and Dr. L. Rosa H. Gantt, Spartanburg, secretary.

Alumni Election.—At the reunion of the graduates of the class of 1901 of the Medical College of the State of South Carolina, Dr. L. Elliott Bull, Cheraw, was elected president; Dr. David M. Michaut, Dillon, vice-president, and Dr. George McFarland Mood, Charleston, secretary-treasurer.

Personal.—Dr. Robert T. Jennings, McCormick, has succeeded Dr. Frank W. P. Butler, resigned, as physician to the state penitentiary, Columbia.——Dr. W. T. Breeland, Allendale, suffered painful injury by being knocked down by his horse, July 23.——Dr. James Adam Hayne, Greenville, has succeeded Dr. Charles Frederick Williams, Columbia, resigned, as State Health Officer and secretary of the State Board of Health.——Dr. Williams has started for Europe.——Drs. Walter Cheyne and Charles P. Osteen have been appointed members of the Sumter Committee on Health and Sanitation.

SOUTH DAKOTA

State Board Elects.—The state medical examining board held its annual meeting at Mitchell last month and elected the following officers: Dr. Frank S. Howe, Deadwood, president; Joseph Mark Walsh, Fort Pierre, vice-president, and Dr. Leslie Grant Hill, Watertown, secretary. The next meeting of the board will be held at Huron in December.

Personal.—Dr. James E. Miller, governor and chief physician of the Battle Mountain Sanitarium, Hot Springs, has been appointed inspector-general of the National Homes for Disabled Volunteer Soldiers and also of the various state homes.——Dr. E. E. Carle, Roseland, has been operated on recently for injuries sustained in an automobile accident and is believed to be out of danger.

TENNESSEE

Society Reorganized.—The Henderson County Medical Society was reorganized recently at Lexington and the following officers were elected: president, Dr. William B. Keeton, Scott's Hill; vice-presidents, Drs. S. T. Parker, Lexington, and Elmer E. Waller, Juno, and secretary-treasurer, Dr. William F. Huntsman, Juno.

Milk Dispensary Opened.—The Memphis Free Milk Dispensary for Babies was opened August 1, at 215 Market Street. Free milk is supplied to babies whose parents are unable to pay for it and to families who are able to pay the milk will be sold practically at cost. The milk used by the dispensary comes from a farm which agrees to furnish milk certified to be standard.

Personal.—Dr. William Krauss, Memphis, has been appointed by the State Board of Health to investigate pellagra in West Tennessee and Dr. J. C. Brooks, Chattanooga, has been placed in charge of this work in East Tennessee.——Dr. Harry D. Miller has succeeded Dr. Daniel Trigg as city physician of Johnson City.——A portrait of Dr. Henry Berlin, Chattanooga, has been presented by a number of women of that city to the Erlanger Hospital.

TEXAS

No Welcome for Lepers.—Dr. Ralph Steiner, Austin, state health officer, has made a supplemental report to the members of the board chosen to select a site for a state home for lepers. He finds that it is impossible to secure a site on account of the opposition and objection everywhere made, and suggests that the thirty lepers in the state might be cared for by the federal government in one of its four or five institutions.

Personal.—Dr. Isaac P. Poyner, Palestine, has been seriously ill as the result of an overdose of headache powder.——Dr. Christopher C. Rutherford, McDade, was seriously injured by a fall, at the home of his son in Yoakum, July 16.——Dr. John N. Howell, Cisco, suffered a loss of $3,000 by a fire which destroyed his library and surgical instruments, July 7.——Dr. Edward H. Schwob, Yoakum, fractured two ribs and sustained other injuries in a street-car accident in New York City, recently.——A gold-headed cane was presented to Dr. James D. Osborne, Cleburne, retiring president of the State Board of Medical Examiners by his colleagues.——Dr. Marvin B. Grace has been appointed health officer of Seguin.

GENERAL NEWS

Personal.—Dr. Charles E. Ruth, formerly of Keokuk, Iowa, who has been living for three years in Porto Rico on account of his wife's health, announces that she has so far recovered that they will return about October 1 and he will resume practice in town.——The degree of master of arts was recently conferred on Captain Henry D. Thomason, M. C., United States Army, by the Pennsylvania Military College.

Sioux Valley Physicians Hold Meeting.—At the annual meeting of the Sioux Valley Medical Association, held at Sioux Falls, S. Dak., July 20, the following officers were elected: president, Dr. John Edward Garver, Sioux City, Iowa; vice-presidents, Drs. Gilbert Geoffrey Cottam, Sioux Falls, S. Dak., and Charles O. Wright, Luverne, Minn.; secretary, Dr. George Stillman Browning, Sioux City, Iowa, and censors, Drs. Gilbert Geoffrey Cottam, Sioux Falls, S. Dak., Philip Benedict McLaughlin, Sioux City, Iowa, Arthur E. Cook, Randolph, Neb., and Alfred E. Spalding, Luverne, Minn. The next meeting will be held in Sioux City, Iowa.

Meeting of Atlantic Coast Surgeons.—At the seventh annual meeting of the Atlantic Coast Line Surgeons, held in Norfolk, Va., July 25 and 26, more strenuous sanitary rules for railroad trains and railroad stations were recommended to the railway companies on the lines suggested by Surgeon Charles P. Wertenbaker, U. S. P. H. and M.-H. Service, in his paper on "Railroad Sanitation." The following officers were elected: President, Dr. James M. Parrott, Kinston, N. C.; vice-presidents, Drs. John Elliott Boyd, Jacksonville, Fla., and Micollins N. Stow, Jesup, Ga.; secretary-treasurer, Dr. Charles P. Aimer, Charleston, S. C. (reelected), and executive committee, Drs. George G. Thomas, Wilmington, N. C., Southgate Leigh, Norfolk, Va., E. L. Cox, Jacksonville, N. C., William S. Lynch, Scranton, S. C., John M. Spence, Camilla, Ga., and George Abner Hammond, Dothan, Ala.

CANADA

Fire in Insane Hospital.—Eight lives were lost in a fire which partly destroyed one of the main buildings of the Hamilton Hospital for Criminal Insane, near Hamilton, August 1, 1911.

Hospital for Fire Sufferers.—At a joint meeting in Toronto, of the relief committee, appointed to distribute funds to fire sufferers in the Porcupine fire-swept district, it was decided to use $10,000 of the fund to establish a hospital at Cochrane, Ont.

Mural Tablets Unveiled.—Two mural tablets were recently unveiled in the entrance hall of the Western Hospital, Montreal; the one in memory of Dr. Francis Wayland Campbell, dean and professor of medicine in Bishop's College and a member of the staff of Western Hospital in 1876 until his death in 1905, and the other commemorating Dr. William Henry Drummond, the Habitant poet, who was a pupil and fellow professor of Dr. Campbell, and an enthusiastic supporter of the hospital.

Opening of Sanatorium.—The Laurentian Sanatorium for the treatment and control of tuberculosis which was informally opened at Ste. Agathe, Que., in May, was officially opened June 15, in the presence of a large gathering of physicians and others from all parts of the Dominion and the United States. The building as it stands has cost $150,000, of which Mr. D. Lorne McGibbon contributed $50,000 and other members of the Laurentian Society $25,000. Dr. Roddick Byer is medical superintendent of the institution.

LONDON LETTER

(From Our Regular Correspondent)

London, July 22, 1911.

Spiritual Healing

In January, 1909, a subcommittee of the British Medical Association consisting of general practitioners, physicians, neurologists and alienists was appointed to investigate the subject of "spiritual healing." Previously, a meeting of clergy and laymen had asked the Bishop of London to form a central church council in the diocese of London for the consideration of questions connected with healing by spiritual means. This led to the conclusion that the subject was of sufficient importance for consideration by the profession. After a study of some literature on the subject the subcommittee had some difficulty in deciding on a clear definition of the meaning attached to the term "spiritual healing" by those who used it. Accordingly a letter was sent to a number of well-known ecclesiastics, including the Archbishop of Canterbury, the Bishop of London, the Dean of Westminster, the Rev. Percy Dearmer (author of "Body and Soul") and others interested in the subject. These gentlemen were asked to assist in clearing up the confusion which existed in connection with the use of the terms "spiritual healing," "faith healing" and "psychic healing." Many long and detailed replies showing a great wish to assist the subcommittee were received. Nevertheless, it cannot be said that these eminent persons threw much light on the subject. They experienced great difficulty in defining the difference between these terms, and none of their utterances added anything to what is generally known. They largely consisted of commonplaces on the influence of mind on body. The subcommittee found great difficulty in obtaining cases for investigation, as those who had written on the subject would not put them in touch with patients treated. The only cases seen were provided by the Emmanuel Society. Ten patients were examined and the diagnosis verified by reference to the records of previous medical advisers, but opportunities for subsequent examination were given in only three cases. It was found that the *modus operandi* in spiritual healing consists in the laying on of hands and praying by the "healer," in surroundings of a more or less impressive character. After carefully considering the various definitions submitted, the subcommittee found that there is no difference in kind between "spiritual healing," "faith healing," "mental healing" and "psychic healing." All these forms seemed to depend for their effect on mental suggestion. There was no evidence to bear out the contention of "spiritual healers" that they had a special "gift of healing." Although there was abundant evidence of the efficacy of suggestion in many disorders, there was none of any authenticated cure of organic disease. The subcommittee concludes that the benefits of suggestion can be obtained from physicians, whose training enables them to distinguish the conditions amenable to it and that, for the protection of the public, it is best left in their hands and they deprecate any formal cooperation between physicians and the clergy.

Fatal Anthrax Contracted by a Laboratory Attendant

A man, aged 24, laboratory attendant at University College Hospital, complained of pains in his head but continued at work. On the third day he came to Dr. Thiele, lecturer on bacteriology at the college and in charge of the vaccine department, and showed him a little pimple on the right side of the neck. Dr. Thiele thought it was a scratch but next morning he noticed that it had become enlarged to the size of a shilling and seemed to show signs of anthrax which was proved to be the case on bacteriological examination. The whole of the lesion was immediately removed, the temperature fell, and in a day or two the patient seemed to be out of danger, but the temperature again rose and in spite of serum treatment he died on the tenth day. The source of infection must have been some tube which he had touched in cleaning up after the students, who were working on anthrax bacilli. Probably he then scratched his neck. Dr. Thiele could not say how this happened, unless some of the students had carelessly allowed some of the organisms to get on the outside of the tube and failed to report it, so that the tube might at once have been put in the steam sterilizer.

A Safe and Efficient Antirabic Vaccine

Lieutenant-Colonel Sir David Semple of the Indian medical service has established the fact that an efficient antirabic vaccine can be made from the dead virus. In a recent research recorded in the Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India he has shown that animals can be as highly immunized against rabies with a dead as with a living virus. He found that the rabies virus was easily destroyed by heat; a temperature of 50 C. killed a 5 per cent. dilution of fixed virus in fifteen minutes. An 8 per cent. dilution in normal saline was killed by 1 per cent. phenol (carbolic acid) at 37 C. in twenty-four hours. When this fluid is diluted with equal volume of normal saline it becomes a 4 per cent. virus in 0.5 per cent. phenol—a very suitable strength for antirabic treatment and containing sufficient phenol to prevent subsequent contamination. This proved efficient in the protection of dogs, rabbits and monkeys against inoculation of the virus. In some cases the protection was not complete, but in these the animals developed the disease later than controls. In addition to safety, this method possesses the great advantage of convenience over that of using the living virus such as is employed in the Pasteur institutes. This cannot be sent to a distance without the risk of impairing its efficiency. On the other hand, the dead virus can be sent to any place where it is required.

PARIS LETTER

(From Our Regular Correspondent)

Paris, July 21, 1911.

An Interesting Discussion on Spinal Anesthesia

Dr. Forgue, professor of clinical surgery at the Faculté de médecine de Montpellier, recently made a report to the Académie de médecine de Paris on novocain spinal anesthesia. On the basis of 320 patients observed, Dr. Forgue concluded that the procedure deserved to be substituted for general anesthesia in many subdiaphragmatic operations. Strong objections were raised. On July 18, several members of the Académie de médecine spoke on the disadvantages of spinal anesthesia. Professor Reclus, especially, who has been the great promoter of local anesthesia in France, remarked that out of Dr. Forgue's 320 cases two-thirds of the patients might have been operated on after local anesthesia. Moreover, 320 cases formed a very small series on which to base conclusions of such a matter. At least 1,000 or 1,500 cases should be observed, for if Dr. Forgue had had one death in one of his late spinal anesthesias, his statistics would thereby become most unfavorable. It is known that there is hardly one death in two or three thousand cases from general anesthesia. No reliance, therefore, can be placed on a series of less than that number. As for local anesthesia, in 12,000 operations performed by Dr. Reclus and his pupils, there has not been one death. Dr. Reclus asks, moreover, what the effect is on the spinal cord of the patient submitted to spinal anesthesia. Here is an organ, protected by Nature with infinite precautions, into which the most violent poisons are nonchalantly injected. There is all the more reason to protest against this encroachment of spinal on the field of local anesthesia because, with the use of recently discovered chemical substances, such as novocain, epinephrin, local anesthesia now permits operations which formerly were not possible, especially the radical cure of hernias. It may be used even in major operations where general anesthesia is contra-indicated.

Dr. Schwartz, *agrégé* professor at the Faculté de médecine de Paris, was of the same opinion as Dr. Reclus. Spinal anesthesia appeared to him, at best, a method to be used exceptionally. Schwartz had had confidence in it but he renounced it entirely and forever on observing the complications to which it gave rise. His last case was that of a woman who had large lacerations of the perineum with rectocele and cystocele, and who could not be placed under the influence of ether. The case, otherwise, seemed ideal for spinal anesthesia, which Schwartz accordingly used. He injected 0.06 gm. of stovain and 0.002 gm. of strychnin sulphate as low as possible in the inferior extremity of the lumbar region. Operation was performed with extraordinary facility but after the following day paralysis of the legs and the sphincters appeared and four or five days afterward a terrible decubitus acutus against which all measures failed.

The observation of Reclus and Schwartz were supported by Dr. Delorme, medical inspector-general of the army.

Erroneous Information in Regard to the Academy of Medicine

In the *New York Medical Journal*, July 1, 1911, I was surprised to read that "Dr. Léon Labbé, one of the most distinguished surgeons in France, is president of the academy." This information is rather belated, for Dr. Labbé was president of the Académie de medecine in 1909. In 1910, Dr. Dieulafoy was president and this year Professor Lannelongue has passed from the vice-presidency to the presidency, as I mentioned in a previous letter (THE JOURNAL, Jan. 14, 1911, p. 130). It is the rule that the vice-president of one year becomes the president for the following year and the presidency lasts only one year.

Personal

The Académie des Sciences has just elected Professor J. Bernstein of Halle-sur-Saale, as correspondent.

Obligatory Report of Acute Anterior Poliomyelitis (Infantile Paralysis)

On July 11, Dr. Netter, *agrégé* professor at the Faculté de médecine de Paris, read before the Académie de médecine a paper concluding in favor of the addition of acute anterior poliomyelitis to the list of diseases which must be reported. Report should be made, not only on typical cases, but on doubtful cases. This should be done at all times even outside of epidemic periods. Not only convalescents but their brothers and sisters should be excluded from school for three weeks. Objects capable of being soiled by the secretions and excretions of the patient ought to be disinfected in the course of the disease and in the convalescence. The room should be disinfected after recovery. The academy voted in favor of these conclusions.

A Discussion in the Senate on Classical Studies and Medical Instruction

In one of the last sessions of the senate, during the discussion of the budget of the ministry of public instruction, there was an interesting discussion in regard to the utility of classical studies in which several physicians took part. Dr. Léon Labbé especially insisted on the necessity of classical culture to enable one to undertake the study of sciences, medical science in particular. He called to witness the great German chemist Liebig, through whose influence the first "realists" schools (*Realschulen*) were founded in Germany, who later, taught by experience, wrote: "The pupils of the *Realschulen* who come into my laboratory are, during the first year, superior to those of the gymnasia; the second year they are equal to them; the third year they become inferior." Dr. Labbé likewise recalled the incessant demand of the Medical Council of London that more and more stress should be laid on the humanities. He also cited Professor His of Berlin, who devoted his inaugural address of clinical medicine to establish the absolute necessity of a general culture of high order for undertaking medical studies to advantage.

Professor Debierre, who was recently elected senator, likewise considers Latin and Greek as necessary for a physician or lawyer as for a literary man or a man of science. He cites his personal experience, which goes back more than twenty years. As professor of anatomy at the Faculté de médecine de Lille, he took part in the scientific and professional education of several generations of studies under the old and under the new regime. He has been able to observe that medical students having the so-called modern baccalaureate (without Greek or Latin) were less prepared for scientific culture than pupils educated under the old regime. At present, declares Professor Debierre, some pupils of our medical schools do not understand scientific language because they have not learned Greek and Latin.

Rôle of Mercury and Some of Its Salts in Certain Cancers

In one of the last sessions of the Académie des sciences, Dr. Odier called attention to the fact that certain cancer patients who have previously undergone mercurial treatment may retain mercury in their systems for several years. Observations extending over a long period had shown him that nothing was more dangerous for cancer patients than to have them follow antisyphilitic treatment. In view of the irritation produced by mercury in the epithelial cells, Odier asks if mercury and its salts administered copiously and in increasing measure in modern therapeutics do not play an important rôle in the causation of cancer.

International Honor to Sir Patrick Manson

The considerable services rendered by Sir Patrick Manson to the study of tropical diseases are well known. The creation of schools and institutions for the study of these diseases are due to him. A committee has been formed to give an international testimonial in his honor. A subscription has been opened to offer Sir Patrick Manson a gold medal bearing his portrait. This medal will be about 7 cm. high by 5 cm. wide and will be executed by Dr. Paul Richer, member of the Académie des beaux-arts and of the Académie de médecine de Paris and professor of anatomy at the Ecole des beaux-arts.

May Syphilis be Considered an Industrial Accident?

The Paris courts have been called on to decide whether syphilis contracted in the exercise of his profession by a mechanician-dentist constitutes an industrial accident. A mechanician-dentist working for a surgeon-dentist was wounded in the little finger; the patient being syphilitic, the mechanician contracted syphilis. On the ground that his infirmity was permanent and that he had experienced a reduction of 80 per cent. in his professional practice, the mechanician-dentist demanded from his employer an annual income of 2,912 francs. The courts did not accept his point of view on the ground that the profession of dentist was a liberal profession and that the dentist employer was not subject to the law with regard to industrial accidents. In the liberal professions, syphilis cannot, therefore, constitute an industrial accident.

The Chair of the Physiology of Speech in the Sorbonne

M. Marge, a doctor in medicine and science, who has been for eight years giving, at the Faculté des sciences de Paris, a course of biologic physics applied to phonation and audition, has just been appointed to give a course on the physiology of speech. This new chair was connected with the institute of phonetics which will soon be opened.

Danger of Arsenic in Vinegrowing

For some months all vineyards have been devastated by a terrible parasite, the cochylis, against which arsenate of lead has been used. Dr. Cazeneuve, senator of the department of the Rhône, has just addressed to the minister of the interior a letter calling attention to the danger to public health in the unrestrained sale of arsenical compounds, which is contrary to the law. Against the decision unanimously taken by the Académie de médecine and by the Council on Public Hygiene and Salubrity of the Seine, lead arsenate has been sold by thousands of kilos in all the vinegrowing regions, just at the time when the usage of white lead was put under the ban of law. The government has even sent aid under the form of arsenates. Dramatic and sensational accidents, such as were to have been expected, have occurred in several departments, without counting those more numerous cases which escape observation owing to their chronic and insidious character, but which are even more serious and dangerous. According to information furnished Dr. Cazeneuve by competent persons, lead arsenate and the arsenical salts are, moreover, altogether inefficacious against the cochylis. Therefore, Dr. Cazeneuve has just asked the minister to put an end to these dangerous practices which are strictly forbidden in Germany and other countries. It is said that in the south, growers spray not the leaves alone but the bunch of grapes itself with arsenic.

Insufficient Supply of Guinea-Pigs at the Pasteur Institute

The laboratories of the Pasteur Institute use each month more than 2,500 guinea-pigs. There was founded several years ago, therefore, an establishment at Garches, near Paris, for the breeding of these animals, but it produces only about 20,000 guinea-pigs a year, so that the institute is obliged to secure elsewhere about 10,000 guinea-pigs. Since these little animals are very expensive to raise, farmers do not find it profitable to breed them. The price of guinea-pigs varies between 1 fr. 25 and 1 fr. 50 (25 to 30 cents), and they are not easy to procure at that price. Mice and rats used in experimental medicine also have gone up in price. One franc is now paid for a mouse and 1 fr. 50 for a rat. For the maintenance and the purchase of experimental animals the Pasteur Institute spends more than $80,000 (400,000 francs) a year.

The Expenses of the Public Charities

The last report of M. Mirman, director of public charities and hygiene, shows that the number of beneficiaries of medical charity is constantly increasing. The number, including those treated at home and at the hospitals, has increased from 615,871 in 1895 to 996,539 in 1909, a continuous and almost regular increase of 27,000 a year. Expenses have increased still more. From about $739,200 (3,696,000 francs) in 1895, it amounted in 1909 to about $3,483,400 (18,416,000 francs). The number of beneficiaries under the law of 1905 in regard to assistance to the aged, infirm and incurable has not ceased to increase, but is not increasing so rapidly. On March 31, 1911, there were 577,816 beneficiaries under the law.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, July 21, 1911.

Personal

Professor Sahli of Bern has declined the call as successor of Moritz at Strasburg and Professor Wenckebach of Groningen, Holland, has been called. The latter some time ago declined a call to Marburg. His present call to Strasburg is due to the fact that he had been a candidate for the position at Marburg. There seems to be no reason why German investigators of equal worth should not have been given due consideration.

The Medical Profession and the Krankenkassen

As was to be expected, the managers of the Krankenkassen have quickly taken a position with reference to the resolutions adopted at the Aerztetag at Stuttgart. At the session of the Krankenkassen last week the decision was taken to prosecute the fight against the demands of the physicians and especially to work against the free choice of physicians. The president of the local Leipsic Krankenkasse , the largest Krankenkasse of Germany, with great courage announced that in his society, an agreement had been reached on the basis of a free choice of physicians which satisfied the medical interests, and insured to the management their rights. He was hooted down by the majority of the members of the congress. In all the speeches there appeared the desire to regard physicians as workmen and subordinates of the management of the insurance society. According to this expression of the Krankenkassen the continuance of conflict between the two bodies must be expected even under the new insurance law.

Medical Supervision of Educational Institutions

Medical supervision of educational institutions has lately been essentially increased. Every institution heretofore had to be investigated as a rule within a period of five years by the district physician. A new regulation of the department of the interior and of the minister of instruction requires that certain educational institutions shall be subjected to a yearly visit. This provision refers to such institutions as receive wards, orphans, deserted and lost children as well as all orphanages and rescue homes and a part of the institutions for the protection of children. The district presidents and the police are required to furnish the district physician with a list of the institutions that are to be visited annually. The inspectors of schools of a district are to furnish corresponding information with regard to the schools for small children, institutions for the protection of small children, kindergartens and the like.

Civil Responsibility of an Asylum Physician

A decision that will not fail to awaken great interest among the managers of insane asylums has been rendered by the court of a Berlin suburb. A Berlin attorney who was confined against his will for several weeks in an asylum in this district and was released as the result of his own efforts and that of his attorney against the advice of the physician brought suit for damages against all the persons who participated in what he claimed was an illegal imprisonment. The court decided that the demand of the complainant against the director of the institution was justified on the ground that the physician in order to maintain the imprisonment of the lawyer had given a certificate that did not correspond with the facts. Naturally the director of the sanatorium appealed and a second trial will be held in the upper court. If the accused is also convicted here the suits which the directors of insane asylums have heretofore experienced in considerable numbers will be unpleasantly and expensively increased. We do not believe that this will happen.

Prize Offer for Essay on Racial Hygiene

The Berlin Society for Racial Hygiene (*Berliner Gessellschaft für Rassenhygiene*) has offered a prize of $150 (600 marks) for an essay on the following question: Does material and social advancement involve any danger to families from the standpoint of racial hygiene? As an indication of the scope of the subject the following interesting remarks are made:

"The German people have experienced an incomparable advancement in the last decades. This advance has been accompanied by a remarkable increase of the population which has helped to spread the economic influence and establish the political and military position of the nation. During this period the movement of the population of European nations in the direction of reduction of the birth-rate began, and Germany, especially in its large cities, was rapidly drawn into the current. Especially among the well-to-do and educated classes of the cities, but also among the better situated portion of the working people, the sinking of the birth-rate is already very noticeable. This leads to the extinction of desirable families and thus to the loss of valuable inherited talents and faculties from the life of our race. While men were striving for economic advancement, they forgot the true values of life and have 'overcropped' themselves. On the other hand, it is noticeable that cripples, invalids and degenerates are not only supported by charity, as humanity demands, but the way is smoothed for them to marry and reproduce their kind, while worthy people are prevented from propagation by the harder struggle for existence. Meanwhile the army of the incapable is feeding at the expense of the whole body of society in a constantly more threatening manner, demanding a continually growing sacrifice of money and labor for its care. Thus we are threatened with a diminution, not only in the quantity, but also in the quality of the coming generation.

"We are dealing here with a [illegible] of physical and mental constitution which [illegible] to transmit unimpaired and if possible improved to our posterity. This general theme is of the greatest importance to the nation and the race and should be cleared up by special research among families. For the family is the unit, the social cell in which, in thousands and millions of individual processes, changes take place which often are only very imperfectly represented in the large figures of statistics. The extent and cause of this phenomenon has not yet been investigated with desirable exactness. Especially should it be determined to what extent the economic and social environment, the changed position in life, produce conditions which are unconsciously active in affecting the fertility and character of families.

"It is left to the discretion of the authors to determine whether they will treat the subject from a physiologic, genealogic, statistical or other point of view. But the work must unconditionally add new utilizable material which will satisfy scientific criticism and must be presented in a generally intelligible manner."—The jury of award consists of Professor von Gruber, Professor Martius, Dr. Ploetz and the president of the Berlin Society for Racial Hygiene.

German Spas

The largest part—194 out of 312—of the German sea and mineral bathing-places are in Prussia. Germany possesses 216 mineral spas of which 102 are in Prussia; there are in all Germany eighty-eight watering places on the East Sea and twenty-eight on the North Sea. In the period from 1870 to

1885 the number of Prussian spas amounted to 202 with eighteen exporting mineral waters; from 1886 to 1900 the spas had risen to 269 and the exporting springs to twenty.

The increase in number of annual visitors to the watering places is a decisive evidence of their prosperity. There has been a steady increase in the number of patrons at all the springs in the period from 1870 to 1900. The number of visitors at the baths rose in this time from 99,136 to 585,460, an increase of 486,324, or more than 350 per cent. The most marked increase was from 1885 to 1900 in the period of great economic prosperity. The number of visitors at mineral springs rose from 168,639 to 345,999, that of the patrons of the seaside resorts from 118,751 to 239,403. The increase was really greater than appears, for since 1895 transients have not been included in the count as before. The number of the patrons of all the bathing places of Prussia rose in this five-year period from 365,472 to 585,460, or about 60 per cent. The great majority of the patrons are naturally Prussians and other Germans, yet the number of foreigners has increased very greatly in the last three decades; Russia furnished the largest number of foreigners, in 1870, 2,024; in 1900, 10,477. While in 1870 America furnished only 401 persons to the contingent of visitors, in 1900 it was 2,611. The number of baths taken was in 1900 about 200,000 more in the mineral spas than at the seaside resorts. There has been quite a remarkable increase in the export of mineral water; it rose from 4,588,768 casks in 1870 to 69,350,208 casks in 1900.

So far as the expense of baths and traveling and other expenses of the patrons is concerned, it may be assumed that a patient will spend on the average for a course of mineral baths $100 (400 marks), for a stay at one of the North Sea resorts $52.50 (250 marks), or on the East Sea $50 (200 marks). On the basis of this uncertain estimate we may calculate that the 374,555 patients in 1905 at the Prussian mineral springs must have spent $34,955,500 (139,822,000 marks), at the North Sea resorts 124.937 visitors would have contributed $18,117,140 (72,468.560 marks), while at the East Sea resorts $10,279,800 (41,119,200 marks) would have been spent by 205,596 patients, altogether $63,352,440 (253,409.760 marks). The export of Prussian medicinal and table waters brought in altogether $3,990,400 (15,961,600 marks). The entire financial returns for Prussia in 1905 thus amounted to nearly $67,500,000 (269,371,360 marks). By a similar calculation for the entire German watering place industry we obtain for 1905 the complete sum of $94,284,433 (377,137,733 marks). [These spas are under the control of the state, which also receives the profits.]

Reduction of the Birth-Rate in the Large Cities

According to official statistics, the two-child system seems well established in Berlin. In 1880 a third of the births were fourth to sixth children, while in 1906 these constituted only a fifth of all births. Of late years the first and second born are relatively much more numerous. In 1906 not only was the actual number of all births much reduced, but the relation between these figures had changed materially in favor of the first born and second born which together constituted 60 per cent. of all births. The families in which there was only one child had increased by 32 per cent. In regard to the reduction in the entire birth-rate the statistics show that in 1900 there were in the month of January 25.56 births per 1,000 of the average population of Berlin, but in the same month of 1905 there were only 23.48 births, and in 1909 only 22.37. The smallest number of births is in October: in October, 1900, 23.37; in October, 1906, 21.09, and in October, 1909, 20.12. In the other large cities, such as Breslau, Hamburg, Hanover and Essen the reduction in the birth-rate has not been so large.

To Prevent Communication of Disease in Telephone Exchanges

For the prevention of the transmission of disease among telephone operators the following regulations have been adopted: In exchanges and public telephone offices the transmitter and the receiver shall be cleansed daily by wiping with a soft piece of leather moistened with a weak (about 3 per cent.) solution of phenol. In exchanges doing a large business the use of the same head received and transmitter (*Brust-Mikrophon*) by several operators or telephone assistants is to be discontinued. Each operator and each telephone assistant must be furnished with a separate head telephone receiver for her personal use. Telephone operators who are affected with contagious diseases must be excluded from this service until the danger of communicating the disease to their fellow workers is past. In doubtful cases the question of contagiousness must be settled by the attending physician. The instrument last used by the sick operator must be thoroughly cleansed without delay.

Marriages

Passed Assistant Surgeon Frederick Gustavus Abeken, U. S. Navy, to Miss Frieda Charlotte Schultz of Seattle, Wash., in St. Louis, July 22.

George G. Chittenden, M.D., Twisp, Wash., to Miss C. A. Ross of Beloit, Wis., at Wenatchee, Wash., July 6.

Thomas Clark Chalmers, M.D., New York City, to Miss Elizabeth Ducat of Downers Grove, Ill., August 1.

Lieut. Henry Clay Coburn, Jr., M.C., U. S. Army, to Miss Elma Matilda Sitley, at San Francisco, July 18.

Lolita Day Bew, M.D., San Francisco, and Mr. William Joseph Fenton, at San Rafael, Cal., June 10.

William James Shaw, M.D., Rome, Ga., to Miss Mabel Frances Norris of Riverside, Ill., August 2.

Frederick Henning Schluter, M.D., to Miss Mildred Elinor Burr, both of Brooklyn, N. Y., July 29.

John J. Burke, M.D., Green Bay, Wis., to Mrs. Goldie M. Browne of San Francisco, Cal., July 19.

Valentine B. Fischer, M.D., to Miss Helen Mae Waltemeyer, both of Boulder, Colo., July 25.

Bryant Robert Simpson, M.D., Adams, Neb., to Miss Lulu Culver of Milford, Neb., July 20.

Waitman F. Zinn, M.D., Baltimore, to Miss Katherine A. Burgess, at Baltimore, July 26.

Clinton James Miller, M.D., to Miss Zona Estella McNutt, both of Ord, Neb., July 26.

Samuel B. Grimes, M.D., to Miss Bessie Teare, both of Cincinnati, July 19.

John Lewis Newman, M.D., to Miss Emma R. Steph, both of Chicago, July 3.

Deaths

William G. Adair, M.D. Western Pennsylvania Medical College, Pittsburg, 1895; a member of the Medical Society of the State of Pennsylvania; for several years a school director of Allegheny and for three terms a member of the common councils of Allegheny and Pittsburg; for fourteen years surgeon to St. John's Hospital; died in the Presbyterian Hospital, Pittsburg, July 28, from septicemia, due to an operation wound, aged 43.

Francis Augustine Howe, M.D. Harvard Medical School, 1854; a member of the Massachusetts Medical Society, and for two years president of the Essex North District Medical Society; said to have been the oldest practitioner of the state; a member of the consulting board of the Danvers State Hospital; died at his home in Newburyport, July 28, aged 84.

Howard Morrison Church, M.D. McGill University, Montreal, 1896; of Montreal; demonstrator of anatomy in his alma mater; a member of the Canadian Medical Association and Montreal Medical Society; surgeon-major of the second (Montreal) regiment of Canadian Garrison Artillery; died in the Montreal General Hospital, July 31.

Orvir E. Osell, Medical-Chirurgical College of Kansas City, Mo., 1903; formerly assistant to the chair of clinical ophthalmology in the Medical Department of the University of Kansas; physician to the El Tigre Mining Company, near Douglas, Ariz.; died suddenly at his home, July 25, aged 43.

George C. Smith, M.D. Jefferson Medical College, 1876; a member of the Medical Society of the State of New York; secretary of the Delaware County Medical Society and health officer of Delhi; a veteran of the Civil War; died at his home in Delhi, July 25, from nephritis, aged 71.

Oscar Asa Tolle Haruff, M.D. University of Colorado, Boulder, 1903; of Pueblo; a member of the Colorado State Medical Society; formerly a member of the city council; died July 26, from injuries due to a collision between his automobile and a railway train, near Pinon, Colo., aged 36.

Adelmann Brookins Manley, M.D. Rush Medical College, 1883; of Shopiere; a member of the Wisconsin State Medical Society, who was operated on at the Beloit Hospital, July 23, for appendicitis and intestinal obstruction; died in that institution, July 27, aged 61.

John Alfred Warren, M.D. Eclectic Medical Institute, Cincinnati, 1873; a member of the Illinois State Medical Society; a member of the local board of pension examining surgeons at Greenville, and a member of the local board of health; died at his home, July 29, aged 75.

David Harmon Lovejoy, University of Michigan, Ann Arbor, 1865 (license, Philadelphia County, Pa., 1894); a clergyman and for fifteen years chaplain at the Episcopal Hospital, Philadelphia; died at his home in Roslyn, Pa., July 26, from heart disease, aged 72.

Levi N. Smith, M.D. Kentucky School of Medicine, Louisville, 1881 (license, Kentucky, twenty years practice, 1894); formerly of Western, Neb.; for thirty years a practitioner of Clinton, Ky.; died at his home in that place, July 1, from typhoid fever, aged 64.

Franz B. P. Becker-Laurich, M.D. Long Island College Hospital, Brooklyn, 1893; for several years house surgeon to the Smith Infirmary, Staten Island, N. Y.; died at his home in Greenpoint, Long Island, July 27, from endocarditis, aged 51.

Carl W. Kuhn, M.D. New York University, New York City, 1874; for forty years a practitioner of Manhattan, but since 1895 a resident of Brooklyn; died in the German Hospital in that city, January 4, from chronic nephritis, aged 76.

James M. Fowler (license, Illinois, years of practice, 1878); a veteran of the Civil War; at one time superintendent of schools of Williamson County and a member of the legislature; died at his home in Crab Orchard, July 27, aged 65.

William Burd Evans, M.D. Maryland Medical College, Baltimore, 1902; a member of the Philadelphia County Medical Society; died suddenly in the Woman's Homeopathic Hospital, Philadelphia, July 28, from uremia, aged 33.

Ansin E. Murphy, M.D. St. Louis College of Physicians and Surgeons, 1896; formerly physician in the United States Indian Service at the Lemhi Agency, Ida.; was shot and killed in his office at Salmon, Ida., July 28, aged 61.

Harry H. Hughes, M.D. Tulane University, New Orleans, 1892; for several years district surgeon at Jackson, Miss. for the Illinois Central Railroad; died at his home in Jackson, July 21, from anthrax infection, aged 42.

Ashael Ebenezer Darling, M.D. Harvard Medical School, 1872; a member of the American Medical Association; died at his home in East Killingly, Conn., July 30, from carcinoma of the stomach, aged 66.

Jeremiah Linden Curtis, M.D. Dartmouth Medical School, Hanover, N. H., 1888; assistant surgeon U. S. V. during the Spanish-American War; died at his home in East Dixmont, Me., July 19, aged 54.

Joseph Pierre Lavalaye, M.D. Yale University, New Haven, Conn., 1903; of New Haven; died at the Polyclinic Hospital, New York City, July 21, a short time after an operation for appendicitis, aged 38.

John F. Carey, M.D. Jefferson Medical College, 1867; a member of the Wyoming State Medical Society; formerly of Sussex County, Del.; died at his home in Cheyenne, Wyo., July 27, aged 69.

David James L. Lackie, M.D. Detroit College of Medicine, 1905; a member of the American Medical Association; died at his home in Grind Stone City, Mich., August 1, from pernicious anemia, aged 33.

Joseph Elias Hayne, M.D., 1895; a colored physician, writer, preacher and ethnologist; a veteran of the Civil War; died at his home in Brooklyn, N. Y., January 14, from lobar pneumonia, aged 62.

Francis C. Clark, M.D. Starling Medical College, Columbus, O., 1898; a member of the Nebraska State Medical Association; died at his home in Craig, July 19, from disease of the brain, aged 38.

Thomas Benton Keplinger, M.D. University of Iowa, Iowa City, 1895; of Conway, Ia.; died at the home of his wife's father, near Sharpsburg, Ia., July 13, from tuberculosis, aged 49.

William E. La Dow, M.D. Western Reserve University, Cleveland, 1891; for several years a practitioner of Warrensville, O.; died at his home in Harlem, O., July 22, aged 43.

Lewis Clarence Sampson, M.D. Ensworth Medical College, St. Joseph, Mo., 1900; died at his apartment in St. Joseph, July 23, from cirrhosis of the liver, aged 37.

William L. Castleberry, M.D. Medical College of Georgia, Augusta, 1871; died in his apartments in Lincoln, Ala., July 14, from heart disease.

E. W. Johnson, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1876; died at his home in Tulip, Mo., July 7, from diabetes.

Charles Ambrook, M.D. University of Michigan, Ann Arbor, 1870; died suddenly at his home in Boulder, Colo., July 23, aged 71.

Ida Charlotte Barnes, M.D. Womans' Medical College of Pennsylvania, Philadelphia, 1890; a member of the American Medical Association and of the staff of Christ's Hospital, Topeka, Kan.; died at her home in that city, July 21, aged 50.

John Millard (license Tennessee, 1889); for forty years a practitioner of Sullivan County; died at his home near Bluff City, July 20, aged 83.

George B. Jones, M.D. University of Buffalo, N. Y., 1869; died at his home in Jamestown, N. Y., July 25, aged 68.

R. J. Howard (license, Kentucky, thirty-two years' practice), 1893); died at his home in Pryorsburg, July 21, aged 60.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

PHARMACEUTICAL SPECIALTIES

In European countries, particularly Germany, there are discovered each year hundreds of new substances which are proposed for use in medicine. Little scientific work of this kind seems to be done in this country. American pharmaceutical houses are apparently content to devote their energies to the devising of "pharmaceutical specialties." These usually are mere mixtures of well-known medicaments so put up as to be attractive both to the eye and the palate—especially the latter—and provided with names that are either meaningless or, more often, therapeutically suggestive.

The representative of a foreign firm in this country was discussing the relation of the pharmacist to the physician and of the manufacturer to both. While his viewpoint naturally was biased, yet much that he said was true. For instance: "Pharmaceutical concerns should also stick more to the one drug or active principle idea, and not encourage so many combinations. Leave these for the doctor to prescribe and the retail druggist to prepare."

On the multiplicity of pharmaceutical specialties to be found in this country, he said: "One firm puts on the market some decided improvement; then, the next thing, your larger pharmaceutical firms, instead of putting their chemists to work to improve what you have, tell them to get busy and try to make an imitation; the outcome is that within a year you have some dozen preparations of the same kind, but under different names."

Of course, it is a fact that most of the new drugs—usually definite chemical compounds—which come from abroad, are found in the long run to constitute no real advance. On the other hand, a product of substantial value is occasionally produced and foreign industries may be credited with a share in medical progress. The credit accruing to our pharmaceutical manufacturers is discouragingly small; in fact, it is no exaggeration to say that the average American "pharmaceutical specialty" is not only of no benefit to medicine or pharmacy, but is a distinct handicap and detriment to both professions.

LIQUID NITROUS OXID

Report of the Council on Pharmacy and Chemistry

The referee of the Council appointed to report on the composition of liquid nitrous oxid as found on the market and to make recommendations as to its inclusion with New and Nonofficial Remedies, submitted the following report:

The Section on Stomatology, at the 1909 session of the American Medical Association, having recommended the inclusion of Liquid Nitrous Oxid with the U. S. Pharmacopeia, the Council voted to describe this product with New and Nonofficial Remedies until such Pharmacopeial recognition had been secured. This action having been decided on, it was necessary to provide a standard of purity for this substance. Correspondence with those who make liquid nitrous oxid, as well as with those who use it, brought out very little information as to what degree of purity should be required. It therefore became necessary to examine the product as it was found on the market.

Prof. Warren R. Smith of Lewis Institute, Chicago, kindly offered to cooperate with the Council and to make an examination of liquid nitrous oxid. The referee herewith transmits the very thorough report regarding the composition of commercial liquid nitrous oxid which has been made by Professor Smith in collaboration with Edwin D. Leman. The referee recommends that the Council express its appreciation for the work, and that it request publication of the report in THE JOURNAL. The referee further recommends that the description of liquid nitrous oxid submitted herewith be adopted for inclusion with New and Nonofficial Remedies.

This report was adopted by the Council, and in accordance therewith the examination of Smith and Leman is published below, and the description of liquid nitrous oxid appears with New and Nonofficial Remedies on another page of this issue of THE JOURNAL. The increasing use of nitrous oxid gas, not only as the sole anesthetic in minor operations, but as a preliminary to ether or chloroform anesthesia, makes the adoption of a standard of purity for this substance highly desirable. W. A. PUCKNER, Secretary.

The Purity of Nitrous Oxid

PROF. WARREN R. SMITH AND EDWIN D. LEMAN

Nitrous oxid is commonly sold in cylinders containing 25 ounces of the liquid, which is approximately equal to 100 gallons of the gas under ordinary conditions. We have analyzed four cylinders of this material from different makers. Three of these samples were purchased in the open market, and the other was supplied to us through the courtesy of the dealer. We find that all these samples contain nitrogen as the principal impurity, that two of them contain oxygen and that one contains oxygen and carbon dioxid.

All samples were tested qualitatively by passing from 2 to 4 liters of the gas through solutions of barium hydroxid, litmus, silver nitrate, potassium iodid and starch and Nessler's reagent, with negative results in every case except the one which showed carbon dioxid. These results proved that the samples were free from acids, chlorin, the higher oxids of nitrogen, ammonia and various other less probable impurities. The findings in the quantitative analysis are given below.

These results cannot be taken as representing the contents of the cylinders with the same degree of exactness than can be obtained in the analysis of other materials of different nature, because, aside from the ordinary difficulties in the analysis of a gaseous mixture, the problem is complicated by the fact that the impurities (oxygen and nitrogen) are apparently held in solution in the liquid nitrous oxid and as the gas is drawn off, they tend to escape from the solution at a more rapid rate, proportionally, than the nitrous oxid. The result is that the first portions of gas drawn from the cylinders are much more impure than the later portions. From a product containing originally 96.1 per cent. of nitrous oxid, samples varying as widely as from 87.2 per cent. to 98.5 per cent. have been obtained. The greater part of the nitrogen escapes with the first half of the gas, but the oxygen and a small part of the nitrogen persist throughout.

This possibility of variation in the composition of the gas as drawn from the cylinders should be known and reckoned with in the administration of the gas. It seems, also, to make a difference whether the sample of gas drawn for analysis is that which has been standing for some time in contact with the liquid, or is that which comes from the liquid after the gas in the upper part of the cylinder has been drawn off. This variation complicates the analysis, but is hardly enough to be of significance in the administration of the gas. The results given below are either averages of those obtained from samples drawn at intervals during the escape of the entire quantity of gas from the cylinder or of material drawn directly from the liquid itself, methods which we have proved to give results practically identical.

Percentage of	No. 1.*	No. 2.*	No. 3.*	No. 4.*
Nitrous oxid........	95.4	93.4	95.8	96.1
Oxygen	0.0	1.4	1.1	00.1
Nitrogen	4.6	5.2	3.1	3.5
Carbon dioxid.......	0.0	0.0	0.0	0.3

* 1 = Johnson & Lund; 2 = Ohio Chemical and Mfg. Co.; 3 = The Lennox Chemical Co.; 4 = S. S. White Dental Mfg. Co.

Carbon dioxid was determined by absorption with alkali, oxygen with alkaline pyrogallol, nitrous oxid by explosion with hydrogen and nitrogen by difference.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TYPHOID VACCINE AND THE WIDAL TEST

To the Editor:—In Major Russell's report to Congress, "The Control of Typhoid in the Army by Vaccination," he states that following the use of typhoid vaccines the blood of the individual treated shows the Widal reaction in very great dilutions. Is this a good test to determine whether the vaccination has "taken" or not? If the blood does not show a positive Widal about four days after the administration of the last dose of vaccine does this mean that immunization did not take place? This has been my experience in using Mulford's vaccine. A. MAVERICK, San Antonio, Texas.

ANSWER.—In Circular 4, issued by the surgeon-general, giving directions for the administration of the typhoid prophylactic, the following statement is made: "The Widal reaction is always positive after typhoid prophylaxis; it appears in about ten days after the first dose and remains positive for six months to a year. This must be considered in diagnosing typhoid in immunized persons; they give a positive Widal regardless of the nature of the illness, and the reaction is consequently of no assistance in making a diagnosis. If typhoid is suspected the diagnosis should be confirmed by blood-culture." The strength of the Widal is increased after the second and third dose and it does not begin to fall off until about ten days after the last dose. If the blood-serum does not give a positive Widal after the administration of the prophylactic the inference is plain that the person has not been immunized and the failure in such a case is most probably due to the use of an inert vaccine.

AN AMBIGUOUS STRYCHNIN PRESCRIPTION

To the Editor:—Will you kindly tell me how to put up this combination?

Strychninæ sulphatis	gr. i
Hydrastinæ hydrochloridi	gr. x
Solutionis acidi borici saturatæ gtts..	cccc

P. J. B. L.

ANSWER.—Inasmuch as the size of a "drop" is variable (depending on the nature of the orifice from which the liquid falls) the prescription is ambiguous. Although under ordinary conditions a "drop" measures usually less than a minim; the prescription was put up by our chemists in the proportion of strychnin sulphate, 1 grain; hydrastin hydrochlorid, 10 grains, and saturated solution of boric acid, 400 minims. It was also put up by using 200 minims of the boric acid solution for the same quantities of the alkaloidal salts. In both cases the salts dissolved readily in the boric acid solution to form a permanently clear solution.

NAUHEIM AND SCHOTT TREATMENT

To the Editor:—1. Please give me the names and addresses of several institutions in this country where the Nauheim and Schott baths are given. 2. Please tell me where I can find some literature regarding the Nauheim and Schott treatment for cardiac hypertrophy.
T. J. WALTHALL, San Antonio, Texas.

ANSWER.—1. Except as may be obtained from advertisements, we have no data from which to select a list of such institutions. 2. The following may be consulted:

Thorne: Nauheim Treatment of Heart Diseases, Pub. Chicago Medical Book Co., Honore and Congress Streets, Chicago. Price, $1.
Thorne: The Schott Method, P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia. Price, $2.
Garson: Remedial Gymnastics for Heart Affections, P. B. Hoeber, 69 East Fifty-Ninth Street, New York City. Price, $2.
Franze, P. C.: Success and Failure in Nauheim Cures, *Medical Record*, May 9, 1908.
Wilson, W. L.: Treatment of Chronic Diseases of the Heart by Carbonated Mineral Baths and Auxiliary Exercises, *Jour. Mich. State Med. Soc.*, August, 1908; abstr. in THE JOURNAL, Aug. 29, 1908, p. 784.
Bishop, L. F.: Baths and Exercises in the Treatment of Abnormal Tension of the Heart and Blood-Vessels, *New York State Jour. Med.*, June, 1909; abstr. in THE JOURNAL, Feb. 20, 1909, p. 654.
Bishop, L. F.: Nauheim Methods in Management of Cardiac Disease, *Medical Record*, March 25, 1911.

TREATMENT OF GOITER IN YOUNG GIRLS

To the Editor:—Some time ago I read an article in THE JOURNAL on the treatment of simple goiter or enlargement of the thyroid gland in young girls. Please give me reference to this article.
S

ANSWER.—Probably our correspondent refers to an answer published in this department Oct. 8, 1910, p. 1306. The patient referred to by the inquirer at that time was a young girl, and the answer is appropriate to the question of our correspondent.

QUINZOIN HAIR TONIC

To the Editor:—Can you tell me the approximate composition of "Quinzoin," a so-called hair tonic made by H. S. Peterson & Co., 212 Kinzie Street, Chicago? C. P. Fordyce, Falls City, Neb.

Answer.—The report of an examination of Quinzoin is contained in the *Bulletin of the Kansas State Board of Health,* May, 1910, as follows: "Sample was found to contain 50.4 per cent. of bicarbonate of soda, small quantity of quinin sulphate and approximately 49 per cent. of coarsely ground quassia." Other "prescription fakes" put out by this firm were discussed in The Journal, Dec. 11, 1909, page 2020.

The Public Service

Medical Department, U. S. Army

Changes for the week ended July 29, 1911.

Register, E. C., lieut., left Camp Douglas, Ariz., with troops for Fort McPherson, Ga.

Keefer, Frank R., lieut.-col., left West Point, N. Y., on thirty days' leave.

Rand, I. W., major, left Fort Hancock, N. J., on thirty days' leave of absence.

Hess, Louis T., major, as inspector and instructor, Sanitary Troops, Pennsylvania troops, Indiana, Indiana County, from July 22 to 29, 1911.

Darby, Taylor E., first lieut., is ordered for temporary duty at Fort McPherson, Ga., and after expiration of leave granted, to return to Fort Sam Houston, Tex., until time to depart for the Philippine Islands.

Tignor, Edwin P., dental surgeon, is granted leave of absence for one month effective about Aug. 1, 1911.

Maguire, Daniel F., first lieut., is ordered from Fort. D. A. Russell, Wyo., to Fort Barrancas, Fla., for duty.

Mount, James R., first lieut., is relieved from further temporary duty at Medical Supply Depot, St. Louis, Mo., and will return to Fort Sheridan, Ill.

Kefauver, Lloyd, A., first lieut., is ordered to proceed from Ft. D. A. Russell, Wyo., to Fort Riley, Kan., for duty.

Brown, Polk D., M.R.C., so much of paragraph 16, Special Orders No. 10, Jan. 13, 1911, War Department, as relates to Lieut. P. D. Brown, M.R.C., is revoked, and by direction of the President, he is honorably discharged from the service of the United States, his services being no longer required, after expiration of leave of absence.

Mount, James R., first lieut., is relieved from duty at Fort Riley, Kan., and will return to proper station, Fort Sheridan, Ill.

Poust, Luther R., M.R.C., relieved from temporary duty at Fort Hamilton, N. Y., and will proceed to Fort DuPont, Del., for temporary duty.

Skelton, Robert, M.R.C., relieved from temporary duty with troops at New York State Rifle Range, and will proceed via Fort Jay, N. Y., to his proper station, Fort Adams, R. I.

Chambers, William H., dental surgeon, reported for duty at Army General Hospital, San Francisco, Cal.

Michie, H. C., Jr., lieut., reported for duty at Fort Missoula, Mont.

Denton, William, lieut., reported for duty at Fort Sam Houston, Tex., from Maneuver Division.

Flynn, Thomas J., lieut., reports for duty at Fort Snelling, Minn., from duty at San Antonio, Tex.

Kefauver, L. A., lieut., reported for duty at Fort Riley, Kan., from San Antonio, Tex.

French, W. H., lieut., reported for duty at Fort Hancock, N. J., from San Antonio, Tex.

Mason, George L., dental surgeon, left Fort Snelling, en route to Fort Leavenworth, Kan., for temporary duty.

Creighton, S. S., lieut., reported for duty at Walter Reed General Hospital, D. C., from San Antonio, Tex.

Clayton, Geo. R., M.R.C., left Fort Sheridan, Ill., with troops for duty at encampment of Organized Militia, Chicago, Ill.

Mudd, Leo C., lieut., reported for duty at Washington Barracks, D. C., from San Antonio, Tex.

Jackson, Thomas W., M.R.C., is granted leave of absence for two months on surgeon's certificate of disability.

Reynolds, Charles R., major, is granted leave of absence for one month and fifteen days, effective Aug. 13, 1911.

Davis, Arthur O., first lieut., is relieved from duty, Maneuver Division, San Antonio, Tex., and will return to proper station, Fort Oglethorpe, Ga., for temporary duty, then after expiration of leave, about September 5, will proceed to Manila, P. I.

Walkup, Joseph O., first lieut., is relieved from duty with the Maneuver Division, San Antonio, Tex., and will proceed to Fort Bayard, New Mexico, for duty.

Divins, George G., lieut., reports arrival at Fort D. A. Russell, Wyo., with Field Hospital and Ambulance Company No. 1 from San Antonio, Tex.

Long, Charles J., dental surgeon, returned to Fort Andrews, Mass., from temporary duty at Fort Ethan Allen, Vt.

Farrow, E. J., M.R.C., left Fort Morgan, Ala., en route to Jackson Barracks, La., for temporary duty.

Poust, Luther R., M.R.C., is relieved from temporary duty at Fort Hamilton, N. Y., and will proceed to Fort Du Pont, Del., for temporary duty, vice Major Hartnett, absent on temporary duty.

Skelton, Robert, M.R.C., is relieved from duty with troops at New York State Rifle Range, and July 20 will proceed via Fort Jay, N. Y., to his proper station, Fort Andrews, R. I.

Ford, Joseph H., major, is assigned as inspector and instructor Organized Militia, New Jersey, at Sea Girt, August 5-12, of Sanitary Troops; and on completion, return to station.

Rutherford, Henry H., major, is detailed for the service assigned Major Hess, as inspector and instructor, Organized Militia, Indiana, Pennsylvania, July 22-29. On completion, return to station.

Brown, Polk D., M.R.C., is granted an extension of twenty days to the leave of absence granted him in Special Order 142, June 22, Department of Texas.

Ford, Clyde S., major, granted leave of absence for one month about Aug. 22, 1911.

Reddy, John R., lieut., reports for duty at Fort Jay, N. Y.

Siner, Joseph L., lieut., reports for duty, Fort Ethan Allen, Vt., from San Antonio, Tex.

Crabtree, George H., major, left Culebra, Canal Zone, en route to the United States, on leave of absence.

Bradley, John R., M.R.C., relieved from duty, Fort Leavenworth, Kan., and from present duty, Department of Texas, and from San Francisco, will proceed to P. I. Sept. 5, 1911.

Campbell, George F., M.R.C., ordered to his home when not needed, Department of Texas, and is relieved from active duty, M.R.C., on expiration of two months' leave of absence herewith granted, effective on arrival home.

Bernheim, Julien R., dental surgeon, is ordered to attend meeting of National Dental Association, at Cleveland, Ohio, July 25-28, as representative of the Dental Corps of the Army.

Manly, Clarence J., major, is relieved from duty with Maneuver Division, San Antonio, Texas, and will return to proper station, Fort Douglas, Utah.

Burnside, F. R., lieut., reported for duty at Fort Riley, Kan., from San Antonio, Tex.

Holland, J. H., lieut., reported for duty at Fort Douglas, Utah, from San Antonio, Tex.

Maguire, Daniel F., lieut., reported for duty at Fort Barrancas, Fla., from San Antonio, Texas.

Mason, George L., dental surgeon, is ordered from Fort Snelling, Minn., to Fort Leavenworth, Kan., for temporary duty, 13th Infantry, and to return to station on completion of this duty.

Aydelotte, John T., first lieut., is detailed inspector instructor of the Organized Militia, Texas, at Camp Mabry, Austin, Texas, Aug. 7 to 16, 1911.

Pinkston, Omar W., captain, granted three months' leave of absence, when he can be spared, with one month extension if desired.

Fauntleroy, Powell C., major, is ordered to Camp Perry, Ohio, to duty as surgeon at National Matches.

Appel, Daniel M., colonel, is granted leave of absence for one month, with permission to apply for extension of one month.

Harmon, Daniel W., first lieut., after his arrival at Seattle, Wash., and on the expiration of leave of absence granted him, will proceed to Fort Oglethorpe, Ga., for duty.

Metcalf, Raymond F., captain, ordered to report Sept. 4, 1911, to Lieut.-Col James D. Glennan, Medical Corps, President of the Examining Board, at the General Hospital, San Francisco, Cal., for examination for promotion.

Mason, George L., dental surgeon, reports for temporary duty at Fort Leavenworth, Kan.

Gunckel, George I., dental surgeon, reports for temporary duty at Key West Barracks, Fla.

Beery, H. R., lieut., left San Antonio, Tex., en route to station Fort Benjamin Harrison, Ind.; reported at for duty July 25, 1911.

Darby, T. E., lieut., left San Antonio, Tex., en route to Fort McPherson, Ga.

Eckels, Lauren S., lieut., reports for duty at Ft. McKinley, Me., from duty at San Antonio, Tex.

Robinson, James L., lieut., reports for duty at Ft. Wayne, Mich., from San Antonio, Tex.

McBrayer, Charles E., lieut., reports for duty at Fort Howard, Md., from San Antonio, Tex.

Trinder, John H., M.R.C., left Ft. Jay, N. Y., en route to Ft. Hunt, Va., for temporary duty.

U. S. Public Health and Marine-Hospital Service

Changes for the week ended Aug. 2, 1911. + + +

White, J. H., surgeon, granted twenty days' leave of absence, without pay, from July 20, 1911.

Gardner, C. H., surgeon, granted one month's leave of absence from Aug. 5, 1911.

Cumming, H. S., surgeon, directed to proceed to Cape Charles City to examine keepers and surfmen of the life-saving service.

Vogel, C. W., P. A. surgeon, granted seven days' leave of absence from Aug. 1, 1911.

Pettyjohn, Joseph, P. A. surgeon, granted one month's leave of absence from July 15, 1911, on account of sickness.

Preble, Paul, asst. surgeon, granted three days' leave of absence from July 24, 1911.

Kolb, L., A. A. surgeon, granted two days' leave of absence, July 5 and July 15, 1911, under paragraph 191, Service Regulations.

Altree, G. H., A. A. surgeon, granted fifteen days' leave of absence from Aug. 3, 1911.

Barclay, James, A. A. surgeon, granted fifteen days' extension of annual leave on account of sickness, from July 5, 1911.

Carter, P. I., A. A. surgeon, granted seven days' leave of absence from July 17, 1911, under paragraph 210, Service Regulations.

Fahey, E. W., A. A. surgeon, granted twenty-one days' leave of absence from July 29, 1911.

Robinson, H. D., A. A. surgeon, granted seven days' leave of absence from July 20, 1911.

Stevenson, J. W., A. A. surgeon, granted sixteen days' leave of absence from July 24, 1911, with pay, and forty-five days, without pay, from Aug. 11, 1911.

Stuart, A. F., A. A. surgeon, granted thirty days' leave of absence from July 25, 1911.

Tappan, J. W., A. A. surgeon, granted twenty days' leave of absence from Aug. 1, 1911.

Townsend, F., A. A. surgeon, granted fourteen days' leave of absence from July 25, 1911.

Wilson, J. G., A. A. surgeon, granted fourteen days' leave of absence from Aug. 5, 1911.

Gahn, H., pharmacist, granted four days' leave of absence from July 24, 1911.

La Grange, J. V., pharmacist, granted thirty days' leave of absence from Aug. 14, 1911.

Spangler, L. C., pharmacist, granted two and one-half days' leave of absence from July 27, 1911

Medical Economics

This Department Embodies the Subjects of Postgraduate Work, Contract Practice, Legislation, Medical Defense, and Other Medicolegal and Economic Questions of Interest to Physicians

A Newspaper Editor on Medical Ethics

The growing interest of newspapers in medical matters is but one of the many indications of the increasing sociological importance of the medical profession and its work. In previous years the press has been wont to regard questions of medical ethics and professional procedure as matters which concerned physicians alone and which were of no special interest to newspapers or their readers. The bearing of professional ethics and conduct on society and the public has become apparent and is causing the more advanced and far-sighted newspaper men of the country to give increasing attention to such questions. Particularly significant in this respect is a recent editorial in the Dallas (Texas) *Morning News* which devotes a full column to a discussion of the report of the committee appointed by the Medical Society of Erie County, N. Y., on division of fees. The comments of the editor are so pertinent and clear-sighted as to entitle them to reproduction in full.

The Medical Society of Erie County, N. Y., of which county Buffalo is the chief city, appointed a committee a few months ago to investigate a charge that surgeons were in the habit of dividing their fees with physicians who brought cases to them. The committee, in its report, sustained the charge; that is, it found that the practice was not only wide-spread in that city, but that it was steadily increasing. It volunteered the further statement, based on inquiries that it had made, that this practice of secret and illicit partnership between surgeons and physicians was more or less general all over the country. Of course the Erie County Medical Association put itself on record as being sternly against this practice, as medical associations would everywhere, since perhaps in every community in the country the reputable largely outnumber the disreputable doctors. It pointed out that, aside from all considerations of professional ethics, the evil of this practice, from the standpoint of the public, is that since the least capable surgeons are the ones who will be most liberal in dividing fees with those physicians who bring them cases, it must result in promoting butchery at the expense of surgery. Another consequence must be, of course, to increase the number of unnecessary surgical operations. One naturally puts large faith in the sincerity of his physician; it is a help the patient gives him in his effort to cure, and when a physician gives advice that, on the face of it, is so unselfish, since he resigns his patient to another, the patient is doubly persuaded that the operation is necessary, even if there be no need of it whatever.

The committee of the Erie County Medical Association made several recommendations as to methods of suppressing this practice. We shall concern ourselves with only one of them, the one which, though slowest in its working, is fundamental and must be the surest. It recommended, if we may express it so, that the doctor mills be made to grind slower. It is hardly, however, an original suggestion, for there has long been a pretty general recognition of the fact that the output of doctors, like the output of lawyers, is annually vastly larger than there is any need of. Some think that it is twice as great as it ought to be. Both professions are everywhere overcrowded. It might be thought that that is the misfortune of those professions only, and that the public has no concern in it; but a moment's reflection will convince any one that this evil of dividing fees, like most if not all other evils that have crept into both these professions, is due fundamentally to the increasing difficulty of making a living in them. Where it is a desperate struggle to earn a bare and precarious existence, human nature succumbs easily to the temptation to stoop to practices that are repugnant even to the sentiments of those who are guilty of them. If there is a large and increasing number of unscrupulous physicians and a larger and more rapidly increasing number of conscienceless lawyers, the fundamental and chief cause of it is that there are more doctors and lawyers than society has any legitimate need of.

If the evil is to be checked at its source, the medical and legal schools must prescribe a longer and more difficult climb for those who aspire to a place in these professions, and the test of proficiency now imposed on those who ask license to practice must be made considerably more rigorous. Than that of medicine there is, of course, no profession that men have a deeper concern in, and unless it is that of journalism, there is none that exercises a greater power for good and evil over society than the legal profession. Surely we have ample reason to require very severe tests of those who are ambitious to exercise the power of these professions. The requirements vary widely in the several states and colleges. The motto of some colleges seems to be "Quickness and Dispatch," and some of them have almost reached the point of making you a doctor or a lawyer "while you wait." Youths seem to be taken in to-day as raw, crude material and sent forth to-morrow as finished product with a "God help you" from the faculty, whereas the larger part of the invocation ought to be made in behalf of society. Perhaps it would be well everywhere to exact a higher degree of academic proficiency as a prerequisite to professional study, and then, of course, a more thorough mastery of the professional studies.

The criticisms of the *News* are well taken. It is perfectly true that the essential factor in the present situation is the existence of too many medical schools and the production each year of too many physicians, or at least of too many half-trained physicians. This fundamental fact has been recognized for years, as the work of the Council on Medical Education will show. The original object for which the Association was organized was the elevation of the standard of medical education and, ultimately, the elevation of the profession thereby. The Association has always labored with this end in view and, during the last seven years, through its Council on Medical Education, has been working definitely and effectively for this purpose.

The *News*, however, overlooks or at least fails to mention the important fact that, no matter how vigorous or intelligent may be the efforts of the medical profession to suppress inefficient medical schools or to prevent uneducated and unqualified men from entering the practice of medicine, its labors will be wholly in vain without the support and hearty cooperation of the public. The regulation of medical colleges and the restriction of the practice of medicine to those who are fit are, ultimately, problems which the public must solve, since they depend entirely on the enactment and enforcement of suitable laws in the various states. But how is the public to be benefited if, in spite of the efforts of the Association and the profession, irresponsible and incompetent persons are allowed to organize and conduct medical schools under the laws of the states without any restriction, or with merely nominal restrictions which are practically ineffective? Yet this is possible in many states to-day. How will the public be benefited if, whenever the Association and the profession succeed in raising the standard for admission to the practice of medicine, cults, sects and unscientific pretenders with practically no knowledge of disease are, under the laws of the states, granted an equal right to practice medicine, on requirements and qualifications far below those required of medical men? How will the public be protected, even if stringent laws for the regulation of the practice of medicine are rigidly enforced, if at the same time osteopaths, chiropractics, neuropaths, vitapaths and all the other herds of "isms" are recognized by law and are given the right to treat the sick, on complying with qualifications of their own making? Yet this is what is occurring in many states. No sooner is a standard for admission to the practice of medicine established than its provisions are at once assailed by a multitude who desire the privileges of physicians, without acquiring the necessary training and knowledge. And when the medical profession protests against such nullification of medical practice acts and insists that there should be but a single standard for admission to the practice of medicine it is denounced as a "medical trust" and as endeavoring to restrict the right to practice medicine to its own members. The qualifications for a license to treat the sick are established by the state and not by physicians. What can we think of a state that recognizes two standards for the same privilege? Yet there is no more justification for the state recognizing two or more standards for physicians than there would be for its recognizing two or more standards for admission to the bar

The division of fees on the part of some physicians (fortunately they are few), the introduction of commercialism into the medical profession and the use of unworthy methods to secure practice are, as the *News* truly says, but incidental phenomena resulting from the admission into the medical profession of unfit and poorly trained men. The duty of restricting the practice of medicine to those who are properly trained and qualified is a duty of the public and not of the medical profession alone. It is essentially a sociological and not a professional question. With the rapid development of modern sanitary methods, it is becoming a most important social problem and one which it is the duty of every citizen, and especially of every newspaper editor, to investigate impartially. If the public can be made to realize its duty and interests, the solution of the question will be greatly advanced. As a means to this end, criticism and discussion in the daily press are of the utmost importance and are highly welcome.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Iowa: Capitol Building, Des Moines, September 19-21. Sec., Dr. Guilford H. Sumner.

Missouri: Kansas City, September 25-27. Sec., Dr. Frank B. Hiller, Jefferson City.

New York: September 26-29. Mr. Harlan H. Horner, Chief of Examinations Division, Department of Education, Albany.

Montana April Report

Dr. William C. Riddell, secretary of the Montana State Board of Medical Examiners, reports the written and oral examination held at Helena, April 4-6, 1911. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 28, of whom 20 passed and 8 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Denver and Gross College of Medicine	(1905)	80.7
Northwestern University Medical School	(1908)	76.9
Chicago College of Med. and Surgery	(1908) 75; (1911)	79.3
Rush Medical College	(1904)	75
Medical College of Indiana	(1896)	75
University of Iowa, College of Medicine	(1910)	75.5
College of Physicians and Surgeons, Baltimore	(1910)	76.6
Baltimore Medical College	(1907)	76.8
Hamline University	(1901) 76.7; (1903) 77.8; (1904) 75; (1908)	76.5.
St. Louis University	(1908)	84.2
Univ. of Mich., Dept. of Med. and Surg.	(1904) 75.6; (1909)	78.3
Creighton Medical College	(1907)	79
Jefferson Medical College	(1910)	81.3
University of Nashville	(1906)	75
Marquette University, Milwaukee	(1896)	75

FAILED

College	Year Grad.	Per Cent.
Bennett Medical College	(1907)	56.8
Baltimore University	(1900)	59.4
Michigan College of Medicine and Surgery	(1901)	63.4
University of Minnesota, College of Medicine	(1903)	68.6
Barnes University	(1910)	67.8
Marion-Sims Beaumont College of Medicine	(1903)	59
Ohio Medical University	(1902)	47.6
Memphis Hospital Medical College	(1910)	69.9

Florida May Report

Dr. J. D. Fernandez, secretary of the Regular Board of Medical Examiners of the State of Florida, reports the written examination held at Tallahassee, May 8-9, 1911. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 51, of whom 46 passed and 5 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Birmingham Medical College	(1909)	92
University of Alabama	(1910)	88
Yale University	(1898)	81
Atlanta School of Medicine	(1910) 82, 87; (1911)	80, 80, 83, 85, 90
Medical College of Georgia	(1911)	80, 88
Atlanta College of Physicians and Surgeons	(1906) 84; (1909) 77; (1910) 75; (1911)	87.
Chicago College of Medicine and Surgery	(1911)	87
Indiana Medical College	(1908)	75
Kentucky University	(1902)	76
Kentucky School of Medicine	(1889) 75; (1897)	87
Tulane University of Louisiana	(1903)	80
Baltimore Medical College	(1906)	84
University of Maryland	(1890) 79; (1910)	75, 88
College of Physicians and Surgeons, Boston	(1910)	88
Creighton Medical College	(1906)	82
Columbia Univ., Coll. of Phys. and Surg.	(1906)	89
Albany Medical College	(1900)	89
New York Med. Coll. and Hospital for Women	(1895)	91
Leonard School of Medicine	(1907)	84
Medical College of South Carolina	(1909)	75
Meharry Medical College	(1911)	86, 90
University of Nashville	(1909) 81; (1911)	75, 90
Memphis Hospital Medical College	(1886) 81; (1893)	87
Tennessee Medical College	(1895)	75
Vanderbilt University	(1910)	81, 82
University of Havana, Cuba	(1897) 80; (1907)	75
University of Athens, Greece	(1906)	75

FAILED

College	Year Grad.	Per Cent.
Medical College of South Carolina	(1910)	58
University of West Tennessee	(1911)	59.7, 62.1
University of the South	(1906)	57.7
University of Tennessee	(1909)	60.1

Kentucky May Report

Dr. J. N. McCormack, secretary of the Kentucky State Board of Health, reports the written examination held at Louisville, May 31 to June 2, 1911. The number of subjects examined in was 10, percentage required to pass, 70, and not less than 60 in any one branch. The total number of candidates examined was 96, of whom 69 passed and 27 failed, including 1 osteopath. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Louisville and Hospital Medical College	(1908)	70
University of Louisville	(1910) 82; (1911)	70, 73, 73, 73, 74, 74, 74, 74, 75, 75, 75, 76, 76, 77, 78, 78, 78, 79, 79, 79, 80, 80, 80, 80, 81, 81, 81, 82, 82, 82, 82, 82, 82, 82, 82, 83, 83, 83, 83, 83, 84, 84, 84, 85, 85, 85, 85, 86, 86, 86, 86, 86, 87, 87, 87, 87, 87, 88, 88, 88, 90.
Ohio Miami Medical College	(1911)	81, 86
Eclectic Medical College, Cincinnati	(1911)	80, 85
Vanderbilt University	(1911)	82
Meharry Medical College	(1909)	84

FAILED

College	Year Grad.	Per Cent.
Kentucky University	(1905)	66
University of Louisville	(1910) 46, 46, 65, 67, 68, 69; (1911)	45, 49, 51, 61, 61, 62, 63, 64, 66, 68, 69, 71.*
Louisville and Hospital Medical College	(1908)	52, 66
Louisville National Medical College	(1910)	58
Meharry Medical College	(1909) 63; (1910) 71;* (1911)	43
Old Practitioner†		36

* Fell below 60 in one or more branches.

† No college or year of graduation given.

Minnesota June Report

Dr. W. S. Fullerton, secretary of the Minnesota State Board of Medical Examiners, reports the written examination held at Minneapolis, June 20, 1911. The number of subjects examined in was 11; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 28, of whom 27 passed and 1 failed. Sixteen candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Northwestern University Medical School	(1909)	86, 87
College of Physicians and Surgeons, Chicago	(1911)	76
Rush Medical College	(1910)	86
Hamline University	(1907) 82; (1910) 85; (1911)	83, 83, 84.5, 86 4, 87.
University of Minnesota, College of Medicine	(1911)	81, 82.6, 83, 83, 84, 84, 84.5, 86, 86, 86, 87, 88, 88, 89, 89.
Jefferson Medical College	(1909)	80

FAILED

College	Year Grad.	Per Cent.
Laval University, Quebec	(1910)	*77

* Fell below 75 in one or more branches.

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1911)	Illinois
Rush Medical College	(2, 1897)	Iowa
State Univ. of Iowa, Coll. of Med.	(1907) (1908) (1909)	Iowa
Johns Hopkins University	(1905)	N. Dakota
St. Louis College of Physicians and Surgeons	(1908)	Wisconsin
St. Louis University	(1910)	Illinois
Creighton Medical College	(1910)	Nebraska
University of Pennsylvania	(1905) New Jersey; (1907)	Maryland
Jefferson Medical College	(1902)	Michigan
Marquette University, Milwaukee	(1910) (2, 1911)	Wisconsin

Book Notices

Criminal Man According to the Classification of Cesare Lombroso. Briefly Summarized by His Daughter, Gina Lombroso Ferrero. With an Introduction by Cesare Lombroso. Cloth. Price, $2. Pp. 322, with 39 illustrations. New York: G. P. Putnam's Sons, 1911.

In this popular volume, one of the Science Series, Lombroso's daughter has summarized her father's work excellently. By temperament and training she is well adapted for such a task, having from early youth been associated with her father in the collaboration of his epoch-making studies on the criminal and his treatment. In the introduction to this book—Lombroso's last literary work—he gives the reader glimpses of the several important steps and incidents which led to his special studies in a comparatively new field. Very early in his career, while a young army surgeon, with much leisure to pursue special work, it occurred to him that in order to study insanity, it was necessary to study the patient, not the disease. He therefore began the use of clinical methods in the study of skulls; he applied measurements and weights, the esthesiometer and the craniometer. Still later he applied similar methods to the study of the criminal, primarily with a view to differentiate the criminal from the lunatic. But he soon stumbled on the idea that the criminal was not so much different from the insane, and he entirely discarded the studies of crime in the abstract and betook himself to direct analytical studies of the criminal compared with normal individuals and the insane.

Lombroso himself attempts to retrace some of the steps which led him to make important deductions. He relates that while at work on his problem, it fell to his lot to make the post-mortem examination of a celebrated criminal, the brigand Vitella, who was carefully examined by him during life. This Italian brigand possessed such extraordinary agility that he had been known to scale steep mountain heights, bearing a sheep on his shoulders. During the examination of this criminal's skull, Lombroso discovered in the middle of the occipital bone—the usual location for an elevation or spine—a depression, which he named the median occipital fossa, a finding analogous with that observed in the inferior animals, especially the rodents. This depression in the skull corresponded with the hypertrophy of the vermis, known in birds as the middle cerebellum.

This was a revelation to Lombroso and it immediately suggested to him the problem of the nature of the criminal—an atavistic being who reproduces in his person the ferocious instincts of primitive humanity and the inferior animals. Thus, says he, were explained anatomically the enormous jaws, high cheek bones, prominent superciliary arches, solitary lines in the palms, extreme size in the orbits, handle-shaped or sessile ears found in criminals, savages and apes, insensibility to pain, extremely acute sight, tattooing, excessive idleness, love of orgies and the irresistible craving for evil for its own sake, the desire not only to extinguish life in the victim, but to mutilate the corpse, tear its flesh and drink its blood. The final key, says Lombroso, was given him by the case of Misdea, a young soldier of about 21, unintelligent, but not vicious. Although subject to epileptic fits, he had served for some years in the army when suddenly, for some trivial cause, he attacked and killed eight of his superior officers and comrades. Having accomplished this horrible deed, he fell into a deep slumber, lasting twelve hours, and on awakening appeared to have no recollection of what had happened. This soldier, while representing the most ferocious type of animal, manifested in addition all the phenomena of epilepsy, which appeared to be hereditary in all the members of his family. It flashed across his mind that many criminal characteristics not attributable to atavism, such as facial asymmetry, cerebral sclerosis, impulsiveness, instantaneousness, the periodicity of criminal acts, the desire of evil for evil's sake, were morbid characteristics common to epilepsy, mingled with others due to atavism.

After retracing the steps that lead to his own achievements in the discovery of the congenital epileptoid criminal, Lombroso does not fail to acknowledge the credit due Enrico Ferri and others, who differed from him in that they maintained that Lombroso's type constitutes only a small number of the entire criminal class, and that the greater number of crimes were committed by the occasional criminal and the criminal by passion. Thus, through the epoch-making studies and the advocacy of numerous reforms by Lombroso, the criminal has received humane consideration, and other workers have still further extended the scope of these early studies, so that the edifice of criminal anthropology, circumscribed at first, has extended its boundaries, embracing the special labors on homicide, political crime, crimes connected with the banking world, crimes by women, etc.

The perusal of this book throws a flood of light on the work of the modern school of criminology, of which Lombroso was the founder and most ardent expounder. We know of no more interesting and instructive summer reading for the physician than this well-written and handy volume affords.

General Medicine. Edited by Frank Billings, M.S., M.D., Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago, and J. H. Salisbury, A.M., M.D., Professor of Medicine, Chicago Clinical School. Volume I, The Practical Medicine Series. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Under the General Editorial Charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School, and Charles L. Mix, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. Series 1911. Cloth. Price, $1.50. Pp. 405. Chicago: The Year Book Publishers.

The greater portion of this volume of the Year-Book Series is taken up with a review of the literature of tuberculosis and the other acute infections of the lungs, pleura and bronchial tubes, and affections of the heart and blood-circulatory system. Most of the remainder is devoted to the physiology and pathology of the ductless glands, and to certain metabolic diseases, as diabetes, gout, obesity and to nephritis. The section on tuberculosis is comprehensive, covering the pulmonary affection in almost every aspect; it indicates that opinion is crystalizing on certain facts regarding the nature and treatment of this disease, one of them being that the infection is general, with its most destructive local manifestation in the lungs; another that sanatorium treatment is the best. In the section on the circulatory system the anatomy and physiology of the heart and vessels, diagnostic methods, and blood-pressure and its significance are well and interestingly covered. Other sections on immunity, vaccine therapy and on poliomyelitis, giving the status of those subjects during the year, complete a very interesting volume.

Spirochetes. A Review of Recent Work with Some Original Observations. By W. Cecil Bosanquet, M.A., M.D., Fellow of the Royal College of Physicians, London. Paper. Price, $2.50 net. Pp. 152, with 90 illustrations. Philadelphia: W. B. Saunders Co., 1911.

This little book is the outcome of a study by the author of the literature dealing with spirochetes. In the first part an effort is made to establish the features peculiar to the genus and in the second part the separate species that have been described are considered briefly. There is a rather useful bibliography appended. The illustrations are numerous, usually fairly well executed, but there are some poor ones. The following statement (p. 15) needs revision: "It is also asserted that whereas bacteriolysins are thermostable (not destroyed by heat), the corresponding substances which act as spirilla (spirochetes) are thermolabile, thus resembling the hemolysins." It is generally accepted that bacteriolysins and hemolysins are quite similar in constitution and behavior with respect to heat and other influences. The book should prove useful as a guide to the literature on the spirochetes.

A Radiographic Atlas of the Pathologic Changes of Bones and Joints. By Amédée Granger, M.D., Lecturer on Radiology and Electro-physics, New Orleans Polyclinic. Cloth. Price, $6. Pp. 207, with illustrations. New York: A. L. Chatterton Co.

This is a collection of seventy-six half-tone plates from skiagraphs of the bones and joints, with explanatory text. The plates are good, and each one is accompanied by a concise instructive description. The volume will prove useful, for reference and comparison, in the interpretation of skiagraphs of these parts, and is worthy of a place in the library of any one undertaking such work.

PRÉCIS D'ELECTROTHÉRAPIE ET DE RADIOTHÉRAPIE OCULAIRES. Par le Dr. A. Leprince (de Bourges). Paper. Price, 3 fr. 50. Pp. 316, with 33 illustrations: Jules Rousset, 12 Rue Monsieur-le-Prince, 1911.

This monograph is the latest and one of the best works on the subject. It opens with a description of most of the appliances required in the manufacture and employment of an important diagnostic and therapeutic agent. While these instruments are mostly of foreign make, yet they have their American counterparts, so that the reader may easily obtain as good as, and in many instances, a better supply at home. Not only are the faradic, galvanic, static and high-frequency currents described and discussed, but phototherapy and the various kinds of radiotherapy receive extended attention. In the second portion of the work, methods of examining receive due consideration. Finally, in the third division of the work, the use of electricity as a purely therapeutic agent in the treatment of ocular affections is discussed. The text is fairly well illustrated and further elucidated by clinical histories and a description of cases in the practice of the author.

Medicolegal

Licenses Revokable for Pretended Olive-Oil Treatment of Gall-Stones—Allopaths, Etc., as Witnesses Against Different Schools—Unprofessional and Dishonorable Conduct

(Berry vs. State (Tex.), 135 S. W. R. 631)

The Court of Civil Appeals of Texas affirms a judgment revoking the license of the appellant Berry, defendant in the court below, to practice medicine in the state of Texas. It was alleged that he had advertised as a physician and specialist, and especially as being skilled in the treatment and cure of cancers and gall-stones; that he had treated a certain woman for gall-stones, promising to remove them for $40; that he gave medicine composed principally, if not entirely, of olive oil; that she took the medicine, believing that it would cure her, and after taking the same passed from her stomach and intestines a large number of balls, of a green color, from ⅛ to ⅜ of an inch in diameter, which were examined by the defendant and pronounced gall-stones by him, whereas the balls were not gall-stones, as the defendant well knew. It was further alleged that the medicine was given with the knowledge and intent that it would form balls, which after passage could be used for the purpose of deceiving the patient. Other instances of such deception were pleaded, and it was alleged that the defendant knew that his representations were false, that they "were grossly unprofessional and dishonorable and of a character likely to deceive and defraud the public." The court thinks that the facts justified the jury in finding that the defendant was guilty of unprofessional and dishonorable conduct such as was likely to and did deceive and defraud the public.

A point was sought to be made of the fact that the law of 1907, under which this suit was prosecuted, does not define what constitutes "other grossly unprofessional and dishonorable conduct of a character likely to deceive and defraud the public." But in Morse vs. State Board of Medical Examiners, 122 S. W. R. 446, the court said that, "unless it be permissible to use language as general as that involved in the statute under consideration, legislation in many instances could not be so framed as to accomplish all that was desired and afford full protection to the public, because of the impossibility of enumerating in detail every separate and distinct act intended to be prohibited." That language was used in regard to the identical part of the statute attacked by the defendant, and the court adopts it as sound and conclusive, however much it may conflict with the decisions of other states. Human ingenuity could not frame a law that would answer the demands of the decision in the case of Matthews vs. Murphy (Ky.) 63 S. W. R. 785, 54 L. R. A. 415, for it would require that every conceivable unprofessional act should be set out and defined before a license could be revoked for any such act.

The question in this case was whether the defendant had perpetrated a fraud on certain patients by giving them certain medicines that would produce certain substances which he represented to be gall-stones and which were not gall-stones at all, and that such representations were fraudulently made, with the intent to deceive the parties to whom he gave the medicine, and thereby obtain money from them. It did not take the wisdom and lore of an "allopath," the knowledge of a homeopath, the philosophy of an eclectic, or the erudition of an osteopath to fit a man to testify to the chemical elements composing the balls, called by the defendant gall-stones; but any chemist of any school of medicine could testify as to their composition. Any one of any school of medicine, or no school, who had the knowledge, could testify that, if a large quantity of olive oil is given and an alkali is also given, a saponaceous mass will be formed in the stomach and intestines. Any one who had obtained the knowledge could testify to the sizes of the cystic duct and common duct and to the ordinary size of gall-stones, and that an ordinary gall-stone could not pass from the gall-bladder through the duct into the stomach or duodenum. No school or system of medicine can change the human anatomy, but it must perforce be the same in all of them, and "allopaths" could testify to questions of anatomy for or against a member of any other school.

It was useless to discuss the question of the competency of a physician of any one school to testify against a physician of another school as to the mode of treatment of disease, because the testimony failed to show different treatment for gall-stones in different schools, and because the defendant showed that he belonged to no one school but was a member of three or more, and was the graduate of several "allopathic" institutions. He was too much of an "allopath" himself to object to "allopathic" testimony, and the court was left in the dark as to whether he gave "allopathic" or eclectic treatment. But, from the amount of oil and other preparations given the patients, the court is justified, perhaps, in presuming that it was not homeopathic treatment. The defendant did not pretend that the olive oil and tartaric acid treatment was taught by the eclectic or any special school, but that it was recognized and accepted in all schools. The "allopathic" physicians were properly allowed to deny the "soft impeachment."

The defendant testified that he knew that the common duct leading from the gall-bladder was too small to accommodate gall-stones of much size; that very little, if any, olive oil taken into the stomach could possibly get into the gall-bladder; that a gall-stone, if dissolved at all in olive oil, must be soaked in it, and the oil must be heated. His testimony alone was sufficient to justify a jury in finding that his treatment was a fraud and that he knew it, and also knew that the material passed by his patients, which he pronounced gall-stones, were not gall-stones.

The statute of 1907 enumerates three causes for which a license may be denied or revoked, but they are separate and independent of each other, and the court is of the opinion that each subdivision of the section is sufficient in itself to justify a judgment of revocation, if supported by facts.

The terms "unprofessional" or "dishonorable" conduct used in the law of 1907 are qualified and modified by the language "of a character likely to deceive or defraud the public," to distinguish them from acts that are unprofessional or dishonorable under the code of ethics prescribed by the honorable profession of medicine that would not, directly at least, react to the disadvantage of the public, such as not advertising, of not entering into a consultation with an attending physician without his consent, and other acts that go to form and constitute the code of the honorable and upright practitioner of medicine. The law leaves to the medical profession the enforcement of its rules of ethics, and, however conducive they may be to creating and preserving the high standard of one of the most important and honored professions in the world, takes no cognizance of them, and does not seek to enforce them, except in so far as their infraction may infringe on the rights and welfare of the public. But when the unprofessional conduct of the member of the medical profession is of such a character as to deceive or defraud the public, then the law denounces such conduct, and strips the offender of the means which make it possible to impose on the credulous and unwary. Such unprofessional conduct would necessarily be closely allied to crime, because it is defrauding the public, and yet it was never intended to confine such conduct to the kind or class of offense that is denounced by the Criminal Code of Texas. That is provided for in a different subdivision of the statute from the one under which this case was prosecuted. The defendant was charged with dishonorable and unprofessional conduct which was calculated to deceive or defraud the public, and such conduct might not necessarily be a crime against the laws of Texas. The gist of the charge in this case was dishonorable conduct calculated to deceive or defraud the public, and the court very properly confined the attention of the jury to that charge. The case of Morse vs. Medical Examiners does not hold that when such a charge as this is made, proof of a felony or other crime must be made, but merely states that the unprofessional conduct must be similar in nature to a crime, as is any attempt to deceive or defraud the public. It is similar and close akin to swindling, but all the essentials of swindling need not be proved in order to justify a verdict of dishonorable or unprofessional conduct.

Society Proceedings

COMING MEETINGS

Colorado State Medical Society, Steamboat Springs, Aug. 15-17.
American Electro-Therapeutic Association, Philadelphia, Sept. 6-7.
Medical Society of the Missouri Valley, Omaha, Neb., Sept. 7-8.
Washington State Medical Association, Spokane, Sept. 5-7.

MEDICAL SOCIETY OF NORTH CAROLINA

Fifty-Eighth Annual Meeting, held at Charlotte, N. C., June 20-22, 1911

Under the Presidency of Dr. C. M. Van Poole, Salisbury

The Pediatric Aspect of Tuberculosis

Dr. Paul H. Ringer, Asheville, N. C.: The child of to-day is the consumptive of to-morrow, and hence prophylaxis is the key-note of the situation. Etiologically, the best authorities favor the inhalation route of infection, despite the assertions of von Behring and others to the contrary. The connection between tuberculosis and the acute infectious diseases of childhood would seem to rest on the catarrhal inflammation of the mucous membranes occurring in the latter, this inflammation when affecting the membranes of the upper respiratory tract paving the way for infections by inhalation. Symptoms of tuberculosis in the child and infant are notoriously inconstant. This applies more to the pulmonary type of tuberculosis than to the infection of other portions of the body. Physical signs are atypical, râles and partial consolidation, so suspicious in the adult, often clearing up rapidly and completely, while sporadic signs in unusual portions of the chest may determine serious trouble.

Modes of treatment are more sociologic and philanthropic than distinctly medical. The following plans have been attempted with success: 1. Sending children of infected families away to the country for a few weeks or months. Life wholly in the open. Fed bountifully and all occupations are out-of-doors. Thus children in the hazy "pretuberculous" stage, or those mildly infected, are restored to health. 2. Children remaining at home are given interest in garden plots and cultivate the same—keeps them in the open. 3. Day camps; extra nourishment. 4. Open-air school.

Treatment depends on two factors: 1. Fresh air and good food; drugs seldom, if ever. 2. Cooperation on the part of the various educational elements of society, medical, sociologic, philanthropic.

Mortuary Statistics in North Carolina for 1910

Dr. Thomas M. Jordan, Raleigh: There died in 1910 from preventable diseases alone, in North Carolina, 6,500 persons; from whooping-cough, 230; measles, 200; diphtheria, 265; small-pox, 5; typhoid, 1,110; tuberculosis, 4,690. The medical profession should demand of the state measures to prevent tuberculosis like other communicable diseases. It is twenty times as destructive to life as measles, whooping-cough or diphtheria, and nine hundred and forty times as death-producing as small-pox. In a public health way, doctors are acting as to tuberculosis exactly as they did when they regarded tuberculosis as incurable and non-communicable.

DISCUSSION

Dr. C. A. Julian, Thomasville: Physicians should be required to report privately all cases of tuberculosis to their superior health officers, and these officers should be required to furnish such patients with health instructions and make them carry out the instructions in detail. Every case of tuberculosis should be cared for by the state, where the families are unable to care for their own patients. I do not believe in placarding the homes of such patients, because that gives the public a false feeling of fear. Where proper care is had in these homes, and if a private report has been made on these cases, and the law is followed to the letter, and the doctor and the patient do their duty, the patient is not a menace and does not require a card sticking up outside his door advertising the fact that he has tuberculosis.

Treatment of Intestinal Tuberculosis

Dr. Samuel G. Gant, New York: The therapeutic measures employed by me in the treatment of bowel tuberculosis are as follows: (1) Measures for improving the general health. (2) Symptomatic treatment using codein, guaiacol or creosote to allay irritable coughing, opium and belladonna to control pain, cramps and diarrhea and, when necessary, combining them with an antiseptic or astringent. (3) Irrigations of ichthyol, balsam of Peru, boric acid or krameria and soda ½ per cent., alternated daily with high injections of olive oil and bismuth to soothe the bowel. (4) Topical applications of silver nitrate 8 per cent., balsam of Peru or ichthyol, 20 per cent. made directly to the ulcers tri-weekly through the proctoscope or sigmoidoscope. (5) Surgical treatment including appendicostomy and cecostomy by means of which a way is provided for through and through irrigation; exclusion for the purpose of preventing the feces from passing over the affected segment and resection where the diseased intestine is removed, which offers the best permanent results.

The Ileocecal Fold and Chronic Appendicitis

Dr. J. Shelton Horsley, Richmond, Va.: Operations for chronic appendicitis, while practically free from mortality, do not always relieve morbidity. The essential cause of unrelieved pain is the fact that the condition which produced the pain was not corrected. Either the diagnosis was not accurate and such diseases as stone in the kidney, rheumatism, spinal trouble, ulcer of the duodenum or stomach or Lane's kink were not excluded or else the local condition about the appendix was not properly interpreted. The ileocecal fold may be shortened by inflammation and consequently produce a pulling or a kinking of the terminal ileum or it may be so constricted by a ligature on the mesentery of the appendix as to cause a greater pulling by the ileocecal fold than existed before the operation. This fold is inserted in the terminal ileum and the ileocecal junction. If well developed it may cover as much as the last 3 inches of the ileum and passes downward into the border opposite the mesenteric attachment. It passes down and blends with the mesentery of the appendix and sometimes is inserted into the appendix itself. Consequently, a ligature in the mesentery of the appendix will produce a marked pulling on the ileum when the ileocecal fold is well developed. I remove the ileocecal fold, if at all well developed, in every operation for chronic appendicitis. I cut this fold close to its insertion into the ileum and dissect it down to where it reaches the mesentery of the appendix, at which point it is ligated. Since adopting this procedure there have been fewer complaints of postoperative pain from patients operated on for chronic appendicitis.

Acute Pancreatitis: Report of a Case

Dr. R. L. Gibbon, Charlotte: A man, aged 46, had enjoyed excellent health, with the exception of occasional mild attacks of indigestion. In the last six or seven months he had suffered acute colicky pains in the abdomen, usually at night, lasting a few hours, and coming on at intervals of ten days or two weeks. For a long time his general health had not seemed to suffer, except for the last few weeks, when he began to lose some flesh. The attacks bore little, if any, relation to food taken. Last attack began the night of February 17. Pain was more violent than usual. Abdominal wall was rigid. Temperature, 99½ F. Some vomiting, but not marked. No jaundice. Pain was referred to the epigastric region just below the ensiform and to the left side of the abdomen. Examination of appendix and gall-bladder, negative. Two days later patient's condition unimproved. Blood-count at this time showed hemoglobin, 70 per cent.; red cells, 4,000,000; white cells, 15,600; no nucleated reds; no malaria. Kidney tests, negative. Patient had slept very little since beginning of attack. Facial expression, bad. Tender spots on left side of abdomen.

On February 22, abdomen was opened through right rectus muscle, with a view of being accessible to either gall-bladder, stomach or pancreas. On entering the cavity there were abundant signs of pancreatitis. Adhesions to anterior abdominal wall on left side, and to the body and tail of pancreas. Omentum and fat around bowels, especially in vicinity of pancreas, showed whitish patches of fat necrosis. Pancreas was greatly enlarged, tail extending far over to the left, but contrary to usual rule, head of pancreas was not noticeably swollen, which probably accounts for the absence of jaundice. Gall-bladder appeared normal and no stones could be felt. Patient showing indications of collapse, capsule of the pancreas was torn through at one point and drainage tube inserted, abdomen being closed through at one point and drainage tube inserted, abdomen being closed with through and through silkworm gut. For the same reason, and because no gross pathologic condition was found, the gall-bladder was not drained. For several days after operation but little hope of recovery for patient was entertained. Pulse was weak, color bad, and respiration difficult. After a few days there was considerable discharge of a thick, chocolate-colored pus. Drain was kept open as long as possible. Patient made a gradual recovery, and at the present time is attending to his duties, although he has not entirely regained his flesh and strength.

Enemata in Surgical Cases

Dr. R. L. Payne, Norfolk, Va.: It is a mistake to believe a nutritive equilibrium can be maintained by enemata, and patients suffering from stomach and other troubles requiring operation should not have operation delayed while nutritive enemata are given to build them up. Not more than 300 calories can be absorbed in the twenty-four hours from the rectum, or less than one-sixth the amount necessary to maintain life. The only thing certain of absorption from the lower bowel is water, and the study of cases of starvation show that life is almost indefinitely prolonged if water is supplied freely. This is so not only because water makes up so large a percentage of body tissue but especially because no elimination of the poisonous waste of the tissues can go on without a supply of water. It follows that a patient whose life would be sustained for many days by the caloric resultant from the burning of his own tissues, will die quickly when deprived of water, because of auto-intoxication from retention of his own waste products. It is a serious question, are not albuminoids in the large bowel liable to be broken up by putrefactive bacteria into ptomaines that may become serious sources of danger to the patient? In my own practice, when the stomach will not retain food, I depend almost entirely on normal salt solution or 5 per cent solution of glucose, as glucose requires no digestion but passes directly into the liver to be transformed into glycogen and is abundant in heat-giving power. There are conditions of the kidney in which too much sodium chlorid can be given and in these cases plain water may be substituted. Always remember when the need is urgent, one must not risk irritating the rectum by giving so-called nutritive enemata, but depend on water. All enemas, to be retained, must be given in the Trendelenburg posture and this is accomplished by raising the foot of the bed.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Journal of Tennessee State Medical Association, Nashville

July

1 Pellagra. B. G. Tucker, Nashville.
2 *Pellagra, With Report of a Case. E. H. Jones, Murfreesboro.
3 *Practical Laboratory Work for General Practitioner. N. Evans, Nashville.
4 Calculus of Kidney. E. D. Newell, Chattanooga.
5 *Remarkable Case of Catatonia. J. W. Stevens, Nashville.
6 Ophthalmia Neonatorum. E. C. Kane, Memphis.

2 and 3. Abstracted in The Journal, May 6, 1911, pp. 1354 and 1355.

5. **Catatonia.**—The patient, male, aged 23, had shown some erratic behavior for several months, culminating a few days before Stevens saw him in a frank psychosis. He lay in bed with eyes tightly closed and was so utterly irresponsive to every effort to arouse him, to induce him to speak, to move or to open his eyes, that his family were much alarmed and feared that he was suffering from some severe brain lesion. For several days previous he had expressed delusions to the effect that he was the Christ, and that he would live always. For a few days subsequent to admission to the sanatorium he would take food and would talk a little. Soon, however, he ceased to do either, and during the past eleven months he has not spoken a word save on three or four occasions, and has less than half a dozen times taken any food spontaneously. At the few times when he has been induced to speak, he has indicated that he fully understands all that is said to him. His refusal of food resulted in resorting to tube-feeding, which has been done regularly twice daily for the past eleven months. For a short time after admission he abandoned his first state of inertia, and would walk about the house and grounds. This, however, soon gave place to inactivity, so that he would sit motionless for hours. The cataleptic state now presented, with classical *cerea flexibilities.* With eyes tightly closed and lips so closely compressed that they extended forward like a snout, he remained mute and totally inactive, and would maintain indefinitely any posture in which his body or limbs might be placed, regardless of how awkward, uncomfortable or cramped this might be.

About a month after admission this gave place to that condition which has continued to the present, viz., a rigid tenseness of every muscle in the body under his voluntary control. To stand him up was like ending up a log, and to stand him on his head was rather easier than to stand him on his feet. This was continued unmitigated for seven months. About Jan. 1, 1911, it began to be noticed that the patient rolled in bed occasionally, turning from side to side, never turning over on his face, but rolling squarely on his side each time as far as possible without precipitating himself forward. This, from an occasional thing, quickly increased in frequency of occurrence, until by the middle of the month it reached the point where he rhythmically turned back and forth twelve or fifteen times a minute, and for many hours each day. From this point the frequency, or rapidity of the turns increased, as did the number of hours in which he daily engaged in it, until the fastigium was reached on February 9, when by careful estimate, during sixteen and one-half hours he rolled from one side to the other 48,256 times. For a period of six hours he turned 17,648 times, or an average of 49 times a minute. Repeated comparisons during the remainder of the sixteen and one-half hours indicated the rate of turning to be the same. Not unremarkable was the fact that the rhythm of the turning scarcely varied at all. During the latter part of February and through March and April his average was something like 15,000 turns, or approximately 3 miles of rolling daily. Since May 10 he had rolled much less. About this time he was put out on the porch for the sake of fresh air. Thinking that he was there unobserved, he would frequently remain still for an hour, relaxed and looking about naturally. The moment, however, he realized that he was being watched, he instantly closed his eyes, stiffened himself, and resumed rolling.

Southern California Practitioner, Los Angeles

July

7 Belladonna Treatment for Drug and Alcohol Addiction. R. Moore, Los Angeles.
8 Changing Type of General Paralysis. C. L. Allen.
9 Surgery of the Palate. T. W. Brophy, Chicago.
10 Stereoscopic Roentgenography. A. Soiland, Los Angeles.
11 History of Medicine From Hippocrates to Galen. R. L. Cunningham, Los Angeles.

Journal of Infectious Diseases, Chicago

July

12 *New Stain for Bacterial Capsules With Special Reference to Pneumococci. E. C. Rosenow, Chicago.
13 *Problem of Transmission in Typhus. R. M. Wilder, Chicago.

12. **Stain for Bacterial Capsules.**—After much experimentation the following method has been devised by Rosenow: Make a thin smear on a perfectly clean slide or cover-glass. If the exudate, such as sputum, is too thick, add enough distilled water so that the material can be spread evenly by means of a piece of fine tissue or cigarette paper. In case of cultures (blood-agar, serum-glucose-agar or Loeffler's blood-serum being preferable) remove a small amount of the growth from the surface of the medium and at once mix thoroughly with a loopful of serum on the slide and spread by means of tissue paper, or better still, make a rather dense suspension in a few drops of distilled water, and then mix an equal quantity of this suspension with serum. As the smear becomes nearly dry, cover for 10 to 20 seconds with a 5 to 10 per cent. aqueous solution of tannic acid; wash in water and blot; stain with carbol (saturated alcoholic solution gentian violet [Grübler] 1 pt., 5 per cent. phenol in water, 4 pts.) or anilin-gentian-violet one-half to one minute, heat over flame but do not boil; wash in water again; Gram's iodin solution for one-half to one minute; decolorize in alcohol (95 per cent.); stain for from two to ten seconds, depending on the thickness of smears, with saturated alcoholic (60 per cent.) solution of Grübler's eosin; wash in water and blot; finally, clear in xyxol and mount in balsam, or examine directly. (If the organism like *B. mucosus* is Gram-negative it may be stained with Loeffler's or aqueous methylene blue.) In case of sputum in which the cocci are imbedded in a more or less tenacious mucus, the capsules, at times, are not rendered stainable by the above method. In that case Rosenow says it is well to fix and stain simultaneously with the 2 per cent. aqueous tannic acid, 4 parts, and saturated solution of gentian violet, 1 part. This modification often gives beautiful results. The cocci, however, decolorize easily and the tannic-acid-gentian-violet may be followed by carbol-gentian-violet and then the usual procedure. Ordinary carbol fuchsin diluted 5 to 10 times, aqueous eosin (50 per cent. sat. sol.) may also be used to stain the capsule although the saturated alcoholic (60 per cent.) eosin has given the best results. Decolorization after the modified Gram procedure of tannic-acid-fixed smears is more rapid than in the case of heat-fixed smears, which should be borne in mind.

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24 Pathology and Symptomatology of Cholelithiasis. A. J. Walton, London, Eng.
25 Some Modifications of Technic in the Surgery of the Gall-Bladder and Bile-Ducts. J. E. Summers, Omaha, Neb.
26 Mesenteric Cysts. G. C. Ney and A. L. Wilkinson, Baltimore.

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of indigestion. In the last six or seven months he had suffered acute colicky pains in the abdomen, usually at night, lasting a few hours, and coming on at intervals of ten days or two weeks. For a long time his general health had not seemed to suffer, except for the last few weeks, when he began to lose some flesh. The attacks bore little, if any, relation to food taken. Last attack began the night of February 17. Pain was more violent than usual. Abdominal wall was rigid. Temperature, 99½ F. Some vomiting, but not marked. No jaundice. Pain was referred to the epigastric region just below the ensiform and to the left side of the abdomen. Examination of appendix and gall-bladder, negative. Two days later patient's condition unimproved. Blood-count at this time showed hemoglobin, 70 per cent.; red cells, 4,000,000; white cells, 15,600; no nucleated reds; no malaria. Kidney tests, negative. Patient had slept very little since beginning of attack. Facial expression, bad. Tender spots on left side of abdomen.

On February 22, abdomen was opened through right rectus muscle, with a view of being accessible to either gall-bladder, stomach or pancreas. On entering the cavity there were abundant signs of pancreatitis. Adhesions to anterior abdominal wall on left side, and to the body and tail of pancreas. Omentum and fat around bowels, especially in vicinity of pancreas, showed whitish patches of fat necrosis. Pancreas was greatly enlarged, tail extending far over to the left, but contrary to usual rule, head of pancreas was not noticeably swollen, which probably accounts for the absence of jaundice. Gall-bladder appeared normal and no stones could be felt. Patient showing indications of collapse, capsule of the pancreas was torn through at one point and drainage tube inserted, abdomen being closed through at one point and drainage tube inserted, abdomen being closed with through and through silkworm gut. For the same reason, and because no gross pathologic condition was found, the gall-bladder was not drained. For several days after operation but little hope of recovery for patient was entertained. Pulse was weak, color bad, and respiration difficult. After a few days there was considerable discharge of a thick, chocolate-colored pus. Drain was kept open as long as possible. Patient made a gradual recovery, and at the present time is attending to his duties, although he has not entirely regained his flesh and strength.

Enemata in Surgical Cases

Dr. R. L. Payne, Norfolk, Va.: It is a mistake to believe a nutritive equilibrium can be maintained by enemata, and patients suffering from stomach and other troubles requiring operation should not have operation delayed while nutritive enemata are given to build them up. Not more than 300 calories can be absorbed in the twenty-four hours from the rectum, or less than one-sixth the amount necessary to maintain life. The only thing certain of absorption from the lower bowel is water, and the study of cases of starvation show that life is almost indefinitely prolonged if water is supplied freely. This is so not only because water makes up so large a percentage of body tissue but especially because no elimination of the poisonous waste of the tissues can go on without a supply of water. It follows that a patient whose life would be sustained for many days by the caloric resultant from the burning of his own tissues, will die quickly when deprived of water, because of auto-intoxication from retention of his own waste products. It is a serious question, are not albuminoids in the large bowel liable to be broken up by putrefactive bacteria into ptomaines that may become serious sources of danger to the patient? In my own practice, when the stomach will not retain food, I depend almost entirely on normal salt solution or 5 per cent solution of glucose, as glucose requires no digestion but passes directly into the liver to be transformed into glycogen and is abundant in heat-giving power. There are conditions of the kidney in which too much sodium chlorid can be given and in these cases plain water may be substituted. Always remember when the need is urgent, one must not risk irritating the rectum by giving so-called nutritive enemata, but depend on water. All enemas, to be retained, must be given in the Trendelenburg posture and this is accomplished by raising the foot of the bed.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Journal of Tennessee State Medical Association, Nashville.

July

1 Pellagra. B. G. Tucker, Nashville.
2 *Pellagra, With Report of a Case. E. H. Jones, Murfreesboro.
3 *Practical Laboratory Work for General Practitioner. N. Evans, Nashville.
4 Calculus of Kidney. E. D. Newell, Chattanooga.
5 *Remarkable Case of Catatonia. J. W. Stevens, Nashville.
6 Ophthalmia Neonatorum. E. C. Kane, Memphis.

2 and 3. Abstracted in The Journal, May 6, 1911, pp. 1354 and 1355.

5. **Catatonia.**—The patient, male, aged 23, had shown some erratic behavior for several months, culminating a few days before Stevens saw him in a frank psychosis. He lay in bed with eyes tightly closed and was so utterly irresponsive to every effort to arouse him, to induce him to speak, to move or to open his eyes, that his family were much alarmed and feared that he was suffering from some severe brain lesion. For several days previous he had expressed delusions to the effect that he was the Christ, and that he would live always. For a few days subsequent to admission to the sanatorium he would take food and would talk a little. Soon, however, he ceased to do either, and during the past eleven months he has not spoken a word save on three or four occasions, and has less than half a dozen times taken any food spontaneously. At the few times when he has been induced to speak, he has indicated that he fully understands all that is said to him. His refusal of food resulted in resorting to tube-feeding, which has been done regularly twice daily for the past eleven months. For a short time after admission he abandoned his first state of inertia, and would walk about the house and grounds. This, however, soon gave place to inactivity, so that he would sit motionless for hours. The cataleptic state now presented, with classical *cerea flexibilitics.* With eyes tightly closed and lips so closely compressed that they extended forward like a snout, he remained mute and totally inactive, and would maintain indefinitely any posture in which his body or limbs might be placed, regardless of how awkward, uncomfortable or cramped this might be.

About a month after admission this gave place to that condition which has continued to the present, viz., a rigid tenseness of every muscle in the body under his voluntary control. To stand him up was like ending up a log, and to stand him on his head was rather easier than to stand him on his feet. This was continued unmitigated for seven months. About Jan. 1, 1911, it began to be noticed that the patient rolled in bed occasionally, turning from side to side, never turning over on his face, but rolling squarely on his side each time as far as possible without precipitating himself forward. This, from an occasional thing, quickly increased in frequency of occurrence, until by the middle of the month it reached the point where he rhythmically turned back and forth twelve or fifteen times a minute, and for many hours each day. From this point the frequency, or rapidity of the turns increased, as did the number of hours in which he daily engaged in it, until the fastigium was reached on February 9, when by careful estimate, during sixteen and one-half hours he rolled from one side to the other 48,256 times. For a period of six hours he turned 17,648 times, or an average of 49 times a minute. Repeated comparisons during the remainder of the sixteen and one-half hours indicated the rate of turning to be the same. Not unremarkable was the fact that the rhythm of the turning scarcely varied at all. During the latter part of February and through March and April his average was something like 15,000 turns, or approximately 3 miles of rolling daily. Since May 10 he had rolled much less. About this time he was put out on the porch for the sake of fresh air. Thinking that he was there unobserved, he would frequently remain still for an hour, relaxed and looking about naturally. The moment, however, he realized that he was being watched, he instantly closed his eyes, stiffened himself, and resumed rolling.

Southern California Practitioner, Los Angeles

July

7 Belladonna Treatment for Drug and Alcohol Addiction. R. Moore, Los Angeles.
8 Changing Type of General Paralysis. C. L. Allen.
9 Surgery of the Palate. T. W. Brophy, Chicago.
10 Stereoscopic Roentgenography. A. Solland, Los Angeles.
11 History of Medicine From Hippocrates to Galen. R. L. Cunningham, Los Angeles.

Journal of Infectious Diseases, Chicago

July

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either on some peculiar toxin formed by the cells themselves, or on a localized loss of resistance to tumor invasion, existent in the breast itself. Inasmuch as these growths are almost always found in mammæ either in early lactation or the last weeks of pregnancy, when the glands are functionally at the height of their activity, it would seem that this condition is the determining factor. The exact process can only be described conclusively when more complete knowledge of the chemistry, notably the toxin-forming power of carcinoma, is attained. It seems a logical deduction, however, to Schumann, that when the essential elements of the mammary gland are in full activity, fulfilling their excessive and occasional function, the secretion of milk, that they must be exceedingly vulnerable to the action of any foreign toxin, as a result of which action pronounced inflammatory response is a direct sequence. Diagnosis, as has been said, presents the greatest difficulty, and the only scientific procedure is to excise a small portion of the tissue for microscopic examination in all cases of supposed acute mastitis that do not yield to treatment which should ordinarily effect a prompt reduction of the inflammation. He adds one case to eleven already recorded in the literature by various observers.

United States Naval Medical Bulletin, Washington, D. C.

July

27 Tropical Diseases in Their Relation to the Eye. E. M. Shipp, U. S. Navy.
28 Intravenous Administration of Salvarsan. G. B. Trible and H. A. Garrison, U. S. Navy.
29 Mental Examination of Fifty Recruits Who Became Insane Soon After Enlistment. H. Butts, U. S. Navy.
30 Diagnosis and Treatment of Hernia in the Navy. B. F. Jenness, U. S. Navy.
31 Davainea Madagascariensis in the Philippines. P. E. Garrison, U. S. Navy.
32 Interpretation of Negative and Weakly Positive Reactions in Noguchi's Complement Fixation Test. M. E. Higgins, U. S. Navy.
33 An Improved Roentgen-Ray Apparatus. H. A. Harris, U. S. Navy.
34 Fracture of Mandible with Improved Method of Adjustment. W. A. Angwin, U. S. Navy.
35 Gunshot Wound of the Elbow. R. Spear, U. S. Navy.
36 Clinical Symptoms Appearing Immediately After Antityphoid Inoculation. J. R. Phelps and G. F. Clark, U. S. Navy.
37 Posterior Gastro-Enterostomy Three Years After Anterior Gastro-Enterostomy. A. M. Fauntleroy, U. S. Navy.
38 Pontine Hemorrhage Resulting From a Blow in Boxing. H. C. Curl, U. S. Navy.
39 Fracture of the Zygoma. R. B. Williams, U. S. Navy.
40 Death From Unruptured Thoracic Aneurysm. E. P. Huff, U. S. Navy.
41 Aplastic Pernicious Anemia Associated with Anchylostomiasis. E. R. Stitt, U. S. Navy.
42 Balantidium Coli Infection Associated with Amebic Dysentery. G. B. Trible, U. S. Navy.
43 Return of Syphilitic Symptoms After Administration of Salvarsan. C. F. Sterne, U. S. Navy.
44 A Case of Syphilis Which Possibly Demonstrates the Efficacy of Prophylaxis Against Venereal Disease. E. H. H. Old, U. S. Navy.
45 Cerebral Syphilis in a Native of Guam. W. M. Kerr, U. S. Navy.
46 A Case of Autoserotherapy. E. O. J. Eytinge and L. W. McGuire, U. S. Navy.
47 Hemoglobinuric Fever. D. G. Sutton, U. S. Navy.
48 Shock Caused by Lightning Stroke. W. S. Hoen, U. S. Navy.
49 An Unusual Cause of a Burn. F. M. Munson, U. S. Navy.
50 Traumatic Extrusion of Testicle. J. A. B. Sinclair, U. S. Navy.

Journal of Biological Chemistry, Baltimore

July

51 Sulphur Linkages in Proteins. T. B. Johnson, New Haven, Conn.
52 Thoamides: The Formation of Thiopolypeptid Derivatives by the Action of Hydrogen Sulphid on Aminoacetonitril. T. B. Johnson and G. Burnham, New Haven, Conn.
53 Digestibility of White of Egg as Influenced by the Temperature at Which It Is Coagulated. P. Frank, New Orleans.
54 *Amino-Acids in the Mature Human Placenta. A. H. Koelker and J. M. Slemons, Baltimore.
55 A Biochemical Study of Proteus Vulgaris Hauser. C. A. Herter and C. T. Broeck, New York.

54. **Amino-Acids in the Placenta.**—The authors examined eighty-three placentæ. They found that approximately one-half of the fresh placenta is blood. The dried placental material is about 7 per cent. of the gross weight of the organ. The hydrolytic products represent at least 31 per cent. of the organic matter. Placental tissue, free of ash and moisture, contains 14.9 per cent. of nitrogen. The nitrogen in the isolated products represents 5.6 per cent. of the weight of the material used for hydrolysis.

Ophthalmic Record, Chicago

July

56 Eye Findings in Hereditary Syphilis. E. Stieren, Pittsburg, Pa.
57 New Method of Operating for Cataract and Artificial Pupil. J. G. Huizinga, Grand Rapids, Mich.
58 Case of Endogenous Panophthalmitis Due to B. Coli. F. Bentley, Seattle, Wash.

Bulletin of the Johns Hopkins Hospital, Baltimore

July

59 *Changes in the Circulation in Aortic Insufficiency. W. G. MacCallum, New York.
60 *Clinical Use of Scarlet Red and Its Component Amidoazotoluol, in Stimulating the Epithelialion of Granulating Surfaces. J. S. Davis, Baltimore.
61 Limitations in Interpreting Thyroid Histology. D. Marine and C. H. Lenhart, Cleveland.
62 *Pneumococcus Peritonitis. Report of a Case. H. B. Stone, Baltimore.
63 An Anomalous Duct Belonging to the Urinary Tract. P. G. Woolley and H. A. Brown, Cincinnati.
64 *Acute Cholecystitis with Large Amounts of Calcium Soaps in the Gall-Bladder. J. W. Churchman, Baltimore.

59. **Changes in Circulation in Aortic Insufficiency.**—By means of a special arrangement MacCallum was able to estimate the work of the ventricle and to study the influence of various factors on it. He found that the tearing of an aortic valve producing an aortic insufficiency causes the heart to perform an extraordinary amount of work, part of which is devoted to the maintenance of nearly a normal rate of flow in the vessels, while the remainder is expended on the forcing out of a quantity of blood which each time regurgitates through the torn valve. This extensive and violent excursion of the ventricle, together with the effect of the regurgitation, produces a very great pulse-pressure with low diastolic pressure and the low tension of the arterial wall allows a great systolic fling which occupies a relatively large part of the height of the pulse curve and thus causes the dicrotic notch to occupy a low position, which is another characteristic of the collapsing pulse. The malnutrition of the heart muscle which follows the severer insufficiencies, may be enough to cause the rapid dilatation of the heart and the death of the animal. In such cases the results are quite different from those in which the heart maintains its activities.

60. Also published in the *Annals of Surgery*, May, 1911, and abstracted in The Journal, June 3, 1911, p. 1684.

62. **Pneumococcus Peritonitis.** — Pneumococcus peritonitis, Stone says, occurs more often in children than in adults, and more often in female than male children. There are two forms: the encapsulated, which exhibits a first period of invasion, a second period of localized abscess formation, and a third of spontaneous rupture of the abscess; and the diffuse form of general peritonitis rapidly fatal unless treated surgically. The symptoms of onset in both forms, varying only in intensity, are abdominal pain, vomiting, fever and diarrhea. Rigidity is not characteristic. The treatment is surgical intervention as soon as possible. The prognosis of the diffuse form is very bad; of the localized form, fairly good. The pus is characteristic, and often sufficient for diagnosis from its macroscopic appearance alone.

64. **Acute Cholecystitis.**—There was nothing unusual about the clinical features of Churchman's case. The patient presented the typical picture of an acute cholecystitis. She had never had typhoid. The illness began two days before admission with chills, fever and a general aching. Delirium appeared that night and the next day there was abdominal pain, at first general, then localized in the right side and radiating to the right shoulder. Nausea and vomiting were present, but there was no jaundice. The physical signs were those of acute cholecystitis. The gall-bladder was not palpable. The liver was slightly enlarged. At the operation straw-colored fluid was found in the peritoneal cavity, cultures from which remained sterile. The appendix was normal, but the gall-bladder was distended and much inflamed. After isolating it with gauze, it was aspirated, but instead of the pus which was expected a fluid, unlike anything previously seen in the gall-bladder, appeared in the barrel of the syringe. It was for a moment uncertain whether what had been supposed to be gall-bladder might not prove to be a cystic growth of the liver. On opening it, however, a large number of bile-stained stones were found and removed. There was neither bile nor

pus in the gall-bladder. The cystic duct was completely blocked by stones. The contents of the distended gall-bladder consisted entirely of a material like that which had been aspirated. The gall-bladder was drained in the usual manner. Convalescence was without event. Three small stones were found in the tube at the first dressing. The discharge from the biliary fistula was at first brownish, later purulent, then thin and mucoid, but it never contained bile. The wound healed to a pin-point opening, through which the limpid mucoid material, characteristic of hydrops, continued to drain.

The sinus persisted, causing the patient almost no inconvenience, but discharging at intervals. After a year had elapsed, she returned to have it closed. At this operation, the gall-bladder contained much clear mucoid fluid (from which no organism could be grown) and a few faceted, pigmented stones. The distended cystic duct contained many gall-stones and communicated with the gall-bladder by an opening so small that the stones could only with great difficulty be delivered into it. The common and hepatic ducts contained no stones. The usual drainage was carried out. Bile appeared in the sinus on the seventh day and soon became profuse. The wound closed promptly and has remained healed. An agar slant was inoculated with some of the material and the *B. typhosus* grew out in pure culture. The patient's Widal reaction was taken and found positive. A chemical analysis of this material showed it to consist largely of soaps of the calcium salts. Some free fatty acids were also present, but no bile pigments.

Archives of Ophthalmology, New York

July

65 Unusual Case of Ectropion of the Uvea and Extensive Defect of Iris. J. Dunn, Richmond.
66 Bilateral Marginal Thinning and Keratectasia With Perforation on One Side. M. H. Schutz, Chicago.
67 Improved Illumination for the Zeiss Binocular Corneal Microscope—Used in the Study of Episcleral Vessels and Their Circulation. W. H. Luedde, St. Louis, Mo.
68 Sympathetic Ophthalmia, First Appearing Four Days After Removal of the Exciting Eye. C. B. Welton, Peoria, Ill.
69 Indications for Operation in Heterophoria and Squint. A. Duane, New York City.
70 Effect of Atoxylon on Eye. Igersheimer, Halle-A.-S.
71 Operative Treatment of Glaucoma by Iridotasis. J. Borthen, Bergen.

Iowa Medical Journal, Des Moines

July

72 *Some Unusual Complications of Typhoid. C. P. Howard, Iowa City.
73 Pathogenesis of Impaired Vision. P. R. Wood, Marshalltown.
74 Observations in Eight Years of Osteopathy. W. A. Rush, Omaha.
75 Pregnant Uterus Didelphys. A. E. Acher, Fort Dodge.
76 Acute Dilatation of the Stomach. C. Burnside, Des Moines.
77 Clinical Briefs in Neurology. F. A. Ely, Des Moines.
78 Standard of Nursing. L. Bristol, Ann Arbor, Mich.

72. **Complications of Typhoid.**—The cases cited by Howard are: (1) Hemorrhagic typhoid, with hematoma of the left rectus abdominis; (2) typhoid with thrombosis of the iliac vein, septic infarct of the lung and pyo-pneumo-thorax; (3) typhoid with thrombosis of the left iliac and femoral arteries and femoral vein, and gangrene of the left leg; (4) typhoid with thrombosis of the aorta and both iliac and femoral arteries, symmetrical gangrene of the legs; (5) typhoid with intestinal hemorrhage, cutaneous hemorrhage and meningitis; and (6) typhoid with acute nephritis, multiple abscesses of the kidney and intestinal hemorrhage.

Journal of Nervous and Mental Diseases, Lancaster, Pa.

July

79 Charles Bell and His Studies in Neurology. H. M. Thomas.
80 Statistical Summary of Cases in Department of Neurology, Vanderbilt Clinic, for Ten Years, 1900 to 1909. S. E. Jelliffe and A. A. Brill.

American Journal of Medical Sciences, Philadelphia

July

81 *Postoperative and Postanesthetic Neurasthenias and Psychoses. J. K. Mitchell, Philadelphia.
82 *Nitrogen Metabolism in Three Cases of Duodenal Alimentation. M. Einhorn and J. Rosenbloom, New York City.
83 *Dilatation Test for Chronic Appendicitis. W. A. Bastedo, New York City.
84 Acquired Diverticula of Sigmoid, With Report of Six Cases. A. D. Dunn, Omaha, Neb., and P. G. Woolley, Cincinnati.
85 Perforating Ulcer of Duodenum: Death From Pulmonary Thrombus. G. T. Vaughan, Washington, D. C.
86 *Purpura Hemorrhagica. Report of Atypical Case. A. C. Matthews and H. P. Carpenter, Poughkeepsie, N. Y.
87 Neoplasms Within the Skull: Early Diagnosis and Treatment. T. A. Williams, Washington, D. C.
88 Reflections on Some Criticisms of Psychoanalytic Method of Treatment. E. Jones, Toronto.
89 Aplastic Anemia, With Report of Case. R. C. Larrabee, Boston.
90 *Granuloma Pyogenicum (Botryomucosis Hominis of the French). R. L. Sutton, Kansas City, Mo.
91 *Generalized Eruptions of Unusual Type, Caused by Absorption From a Belladonna Plaster and From the Ocular Instillation of Atropin. F. C. Knowles, Philadelphia.
92 *Investigations Concerning Value of Microscopic Examination of the Blood for Bacteria. G. A. Fried, Bedford Hills, N. Y., and A. Sophian, New York City.
93 *Digestion in Fever. J. B. Nichols, Washington, D. C.
94 Hemorrhages in Pulmonary Tuberculosis. C. M. Montgomery, Chestnut Hill, Pa.
95 Mountain Sickness. A. Strauch, Chicago.

81. **Postoperative and Postanesthetic Neurasthenias and Psychoses.**—There is not and there cannot well be any reliable evidence as to the frequency with which neurasthenias or other forms of mental disturbance follow operations, since the operating surgeon often knows nothing of their occurrence, many of them not making their appearance until weeks or even months after surgical and anatomic recovery is complete. The surgeon's records, therefore, only show such acute troubles as passing deliriums, temporary confusion, or aberration, such as sometimes appear directly after operations, and which may with probability be referred rather to the anesthetic or to the physical shock than to the operative procedure; some examples of this type are recorded in the accompanying list. Mitchell has made examination of some hundreds of case histories, taken with few exceptions during eight or ten years past. Certain definite forms of neurasthenia and psychasthenia have been omitted from consideration altogether, as those of sexual origin, a few in which it seemed possible that beginning paresis or dementia præcox was at the root of the symptoms, several in which the history was too vague and those in which the patient for any reason was not long enough under observation for the certain establishment of the diagnosis.

Three hundred and forty-four histories remained after these exclusions. These were reviewed, with the aim of discovering how many of them could fairly and reasonably be classed as postoperative or postanesthetic troubles. Total patients examined, 344: women, 220 (or 64 per cent.); men, 124 (or 36 per cent.). Instances of neurasthenic or mental disorders following operation or anesthesia, thirty-one (or 9 per cent. of the total patients examined); women, twenty-nine (or 94 per cent. of the postoperative cases); men, two (or 6 per cent. of the postoperative cases). The operations in these cases varied widely, from the most trifling surgical intervention, such as ocular tenotomy, straightening of the nasal septum or dilatation of the cervix uteri, up to total hysterectomy and ovariotomy. The worst and most persistent examples of nervous disorder have not by any means always followed the most serious operations. No doubt, says Mitchell, as in other neurasthenic conditions, a certain constitutional or temperamental predisposition is required as a precedent, and one cannot make a rule excluding this as one of the causes, as one would in judging of purely traumatic neuroses; but Mitchell tried to exclude from the list those in which there were marked and distinct causes other than operative in addition to the neurasthenic predisposition. Mitchell says that should the question of surgical treatment of a neurasthenic person arise, much more than the ordinary care must be exercised in deciding on operation. Wise practice will choose any other route than a surgical one, however roundabout it may make the journey. The only sufficient reason for an operation in a neurasthenic is that the procedure is one which would be absolutely demanded were the patient in perfect nervous health. The physician and the consulting surgeon must never be deceived into undertaking an operation for the relief of neurasthenic symptoms, unless these symptoms would imperatively require surgical measures in a person not nervous. An operation may relieve neurasthenic symptoms; it will not cure the patient, and there is a good chance that a few months will see her worse than ever, having gained nothing but a new experience, and very likely an exchange of old symptoms for new ones. One should, he says, think twice before advising an operation on a neurasthenic, and having thought twice it will often prove best to think a third time, and then not operate. Above all, the operation should never be recommended with the idea or even the hope that if successful it will cure the neurasthenic. The neurasthenia may be no worse after than before; but most assuredly it will very seldom be cured.

82. **Nitrogen Metabolism in Duodenal Alimentation.**—In the three cases of duodenal alimentation studied by Einhorn and Rosenbloom the absorption of the nitrogen of the food took place to a normal extent. Nitrogenous catabolism, as measured by the quantities of urea and ammonia that were excreted, was normal in degree. All of the patients had a positive nitrogen balance throughout the duodenal feeding periods.

83. **Dilatation Test for Chronic Appendicitis.**—To make this test a colon tube is passed 11 or 12 inches into the rectum and air injected by means of an atomizer bulb. If, as the colon distends, pain and tenderness to finger-point pressure become apparent at McBurney's point, there is appendicitis. Bastedo has compared the test in a number of instances with the Rovsing test and finds this much the more certain; but at times, after moderate dilatation with air, the Rovsing method of forcing the air back into the cecum may be used with advantage. The indication for the test is a suspected chronic or latent appendicitis, or any persistent digestive or abdominal disturbance, in which no cause can be found for the trouble. Six cases reported by Bastedo are said to illustrate the positive findings of the dilatation test. In the use of the test during the last four years he has had no case in which the test was positive and the operation findings negative. But in two out of all of his cases, the negative finding of the test was followed within six months by a typical attack of appendicitis, and the test was, therefore, presumably at fault. With very few exceptions, therefore, the test has proved accurate, and Bastedo believes that it may well serve as a guide to the necessity for operation, particularly in the three classes of cases mentioned, viz., suspected chronic appendicitis, persistent gastro-intestinal or abdominal disturbance of unknown cause, and appendicitis versus ovarian or tubal inflammation.

86. **Purpura Hemorrhagica.**—The interesting and unusual circumstance connected with this case is the fact that there were no evidences of any integumentary lesions until the constitutional symptoms had practically run their course and had almost caused a fatal termination.

90. **Granuloma Pyogenicum.**—Sutton regards it as being very probable that granuloma pyogenicum is the result of a staphylococcic infection of the upper corium, and that the involvement of the superficial structures is not directly concerned in its production. The irritation set up by the bacteria and their products gives rise to excessive cell proliferation, and the resulting granulation tissue is forced upward through the opening in the epidermis through which infection of the deeper tissues originally took place.

91. **Belladonna Poisoning.**—Knowles reviews a number of cases to show that more or less generalized eruptions not only occur from the internal administration of belladonna or its alkaloid, atropin, but also from absorption through the skin of local applications of the same. The skin does not have to be broken or denuded of epidermis for absorption to take place; the symptoms of poisoning, however, develop much sooner if such is the case. The great majority of the cases exhibit an erythematous or scarlatinal type of eruption, which is more frequently found on the face and the upper portion of the body, but in a fair number of cases the outbreak is generalized. Gangrenous, purpuric and eczematous eruptions have been reported. The author describes a unique, or at least a very unusual, type of outbreak. Although in a great many instances severe symptoms of poisoning are present, the eruption may be unaccompanied by other manifestations of drug absorption. Mydriasis is a quite constant phenomenon; in a few cases, however, the pupils were only slightly enlarged, entirely normal, or unilaterally dilated. The prognosis is favorable; only one death occurred in this large series of cases. Belladonna or atropin may produce a local eruption from the local irritant effect.

92. **Examination of the Blood for Bacteria.**—It is stated by Fried and Sophian that bacteria can be found microscopically in the blood of a large majority (97 per cent.) of cases in which their presence has been demonstrated by blood-culture. In a number of the cases (12 in 132, about 9 per cent.) bacteria were demonstrated in the blood, by them, which had been found sterile by means of blood-cultures taken according to the methods now in vogue in the laboratory. Microscopic examination of the blood with all the methods that have so far been used was not of service in cases in which the presence of Gram-negative organisms was suspected.

93. **Digestion in Fever.**—The average reduction of digestion during fever was found by Nichols to range not over 5 to 10 per cent. This falling off is so small as for practical purposes to be almost negligible; indeed, the digestion of animal and mixed food in fever is quite as good as that of vegetable food in health. The belief in a great impairment of digestion in fever, Nichols says, is an idea based on vague impressions and dogmatic assumptions that has come down to us from the dark ages of medicine. The reduction actually shown by exact observations is so small as to dispel any fear, in general, of fever patients being unable to digest and absorb an adequate amount of the nutriment offered them, or to necessitate, on that account, any diminution of the diet.

Virginia Medical Semi-Monthly, Richmond

July 21

96 The Mosquito and Pellagra. C. Thorington, Montgomery, Ala.
97 Anesthesia in Rectal Surgery. L. Eliot, Washington, D. C.
98 Some Mastoid Experiences. C. M. Miller, Richmond, Va.
99 Experiences with Grave Cases of Typhoid Acetonuria. J. H. Hiden, Pangoteague, Va.
100 Prophylaxis of Typhoid. D. O. Foley, Mt. Jackson.
101 Unusual Effects of Potassium Bromid and Passion Flower. S. Harnsberger, Catlett, Va.
102 Case of Mastoid Operation Under Local Anesthesia. J. A. White, Richmond.

Canadian Medical Association Journal, Toronto

July

103 *Origin and Development of the Canadian Medical Association. G. E. Armstrong, Montreal.
104 *Present Status of Surgery in Canada. A. Primrose, Toronto.
105 *Scarlet Fever. A. E. Vipond, Montreal.

103 and 104. Abstracted in The Journal, July 15, 1911, p. 244.

105. **Scarlet Fever.**—Having come to the conclusion that the specific organism of scarlet fever would probably be found in the lmyph-nodes of the body, Vipond confined his work entirely to the glandular system. April 14, 1911, he obtained from the body of a child, 4 years of age (who died of scarlet fever), a number of enlarged axillary and inguinal lymph-nodes, from which he obtained the lymph. This lymph, under strict antiseptic conditions was inoculated into a slant of agar, blood-serum and broth. Within a few hours, a mixed growth developed on the different media, part of which proved to be staphylococcus aureus; and part, a raised white growth, which on examination proved to be bacilli. This bacillus, when isolated, proved to be of rapid growth, and grew steadily on different media, including dextrose-agar, glycerin-agar, blood-agar, plain-agar, blood-serum and broth. On dextrose-agar a well-developed growth was observed within twenty-four hours. From five cases a pure culture was obtained, two from inguinal nodes, one from the axillary nodes, and two from anterior, cervical nodes. Two were post-mortem cases. Having obtained the bacillus which he regards as the specific organism of scarlet fever, Vipond decided to inject a broth culture into a monkey, with the hope that the animal would develop scarlet fever. In this he was not disappointed. The bacilli have been inoculated into five monkeys and two rabbits. Typical scarlet fever has developed in all, including rash, enlarged lymph-nodes and desquamation. No suppuration in any one instance took place at the point of inoculation. Streptococci would likely have had this effect. The same bacilli have been recovered from the lymph-nodes in each instance, and further, the typical growth has developed on the different media. Vipond also succeeded in producing typical scarlet fever in a monkey and in a rabbit by direct contagion from monkeys and rabbits suffering from that disease and recovered the same bacillus from the inguinal nodes of these.

Medical Fortnightly, St. Louis

July 25

106 Indications for Nephrectomy. E. O. Smith, Cincinnati.
107 Treatment of Puerperal Sepsis With Reference to Antistreptococcus Serum. C. A. Boice, Washington, Ia.
108 Mental Strain. D. L. Field, Jeffersonville, Ind.
109 In the Twilight. C. E. Warren, North Easton, Mass.

Journal of American Public Health Association, Columbus, O.

June

110 Present Organization and Work for the Protection of Public Health in Canada. F. Montizambert, Ottawa, Ont.
111 Canadian Commission of Conservation and Public Health. C. A. Hodgetts, Ottawa, Ont.
112 *Organization of the Sanitary Service in the Federal District, Territories, Seaports and Principal Frontier Cities of the Mexican Republic. E. Liceaga, Mexico City, Mex.
113 *Studies on Self-Purification of Streams. G. F. Ruediger, Grand Forks, North Dakota.
114 *Resistance of Small-Pox Vaccine to the Coal Tar Disinfectants. C. T. McClintock and N. S. Ferry, Detroit, Mich.
115 *Quarantine or Isolation in Scarlet Fever, Which? F. G. Curtis, Newton, Mass.
116 Tuberculosis in Immigrants. P. H. Bryce, Ottawa, Canada.
117 Venereal Disease and Its Influence. J. H. Cunningham, Boston.
118 Ophthalmia Neonatorum: Progress in Prevention. H. C. Greene.

112. Abstracted in The Journal, Sept. 24, 1910, p. 1137.

113. Abstracted in The Journal, Sept. 17, 1910, p. 1043.

114. Resistance of Small-Pox Vaccine.—It appears from the investigations made by the authors that the large majority of the coal tar disinfectants (phenol, cresols and the like) do not destroy the virulence of vaccine virus in ½ per cent. solutions at five hours' exposure, while with this strength and length of time it is probable that these disinfectants would destroy all non-spore-bearing bacteria.

115. Quarantine or Isolation in Scarlet Fever.—From our present knowledge it appears that scarlet fever is a disease that is transmitted by contact and not by fomites; that the scales of desquamation play very little, if any part, in the transmission of contagion, the chief danger lying in the buccal, nasal and aural secretions; and that the release of each case should be decided on its merits. Curtis advises that in all communicable diseases, it is better to remove each patient to a hospital, but should this be impossible, it is better to isolate the patient and allow the other members of the family to continue their regular vocations, educational and otherwise, as long as the isolation is maintained to the satisfaction of the board of health.

Vermont Medical Monthly, Burlington

July 15

119 Salvarsan in Treatment of Syphilis. C. B. Keenan, Montreal.
120 Hysteria. F. W. Sears, Syracuse, N. Y.
121 History of Syphilis. C. S. Scofield, Richmond.

Archives of Internal Medicine, Chicago

July

122 *Meningococcus Endocarditis With Septicemia. R. L. Cecil and W. B. Soper, New York City.
123 *Physiologic Investigation of the Treatment in Hemoptysis. C. J. Wiggers, Ann Arbor, Mich.
124 Postanesthetic Glycosuria. P. B. Hawk, Urbana, Ill.
125 Postanesthetic Glycosuria of Surgical Patients. J. M. Swan, Watkins, N. Y.
126 Malignant Tumors of the Adrenal. B. F. Davis, Chicago.
127 *Hemochromatosis. T. P. Sprunt, Baltimore.

122. Meningococcus Endocarditis with Septicemia.—The cases of meningococcus endocarditis studied by Cecil and Soper have brought out the following interesting facts: 1. The meningococcus, in spite of its affinity for the meninges, may at times become lodged on the endocardium, with the production of an acute vegetative endocarditis. In this respect it resembles most of the other pathogenic bacteria, which, while showing a predilection for some particular organ or tissue, may occasionally produce serious lesions in other parts of the body. 2. The symptoms and pathologic anatomy of meningococcus endocarditis correspond to those which characterize malignant endocarditis of streptococcus or pneumococcus origin. 3. Meningococcus endocarditis may or may not be associated with cerebrospinal meningitis. 4. The portal of entry for the organism in meningococcus endocarditis is probably the upper respiratory tract. It is particularly interesting to note that the avenue of infection is the same as that generally accepted as the portal of entry for streptococcus endocarditis on the one hand, and for meningococcus meningitis on the other. 5. The occurrence of primary meningococcus endocarditis with meningococcus septicemia furnishes evidence in favor of a hematogenous mode of infection in epidemic cerebrospinal meningitis.

123. Treatment in Hemoptysis.—Early in the course of hemoptysis, when the breathing has not altered except for an occasional cough, Wiggers says, one is dealing practically with a normal subject, and the object of paramount importance is to promptly reduce the bleeding by such drugs as lower the pressure within the pulmonary circuit. Investigation by Wiggers shows (1) that this cannot be accomplished by vasomotor drugs, such as nitroglycerin or nitrites, and (2) that cardiac depressants, such as chloroform and pituitary extracts, must be resorted to. If hemorrhage has continued until the heart is very rapid and the respirations accelerated, deep and forcible, it is an indication (1) that the heart and blood-vessels no longer react in a typical manner to certain drugs, and (2) that the anemia of the cerebral centers is being felt. During this stage it is important that the blood-supply of the brain be not reduced by the drugs which check hemoptysis. Hence, the drug that combines an ability to elevate systemic arterial pressure and simultaneously to lower that in the pulmonary circuit is the ideal physiologic agent to employ during this stage. In the entire gamut of drugs investigated, pituitary extract is the only one that possesses this fortunate combination of actions.

127. Hemochromatosis.—Three cases are reported by Sprunt. The first case is one of simple hemochromatosis with the complication of tuberculous peritonitis forming a prominent part of the clinical picture. The other two cases are quite typical of the more frequently described form usually designated as bronzed diabetes. In all three cases there were the associated signs of asthenia, enlargement of the liver, and skin pigmentation which served to make the diagnosis clear in the two cases in which diabetes was present. In one case without diabetes, the diagnosis was made more difficult by the presence of the tuberculous peritonitis, but in this case, too, the association of the signs mentioned was considered very suggestive of hemochromatosis. The onset in the first case was rather insidious. It was more abrupt in the other two, the first symptoms being those of diabetes. The duration of the disease in each case after the appearance of the first symptoms was twelve, ten and five months, respectively. In all the cases there was an increase in those pigments present in less degree physiologically. There was a striking accumulation of fine yellow pigment granules in the tubules of the testes and epididymes and in the vas deferens and seminal vesicles in the third case. In each case there was an increase in the connective tissue of the liver, pancreas, lymph-nodes and spleen. In addition, this occurred to a slight extent in the heart muscle in one case and in the prostate and testicles in another. One case suggested a slow deposition of pigment for a comparatively long time, while the picture in the third case gave one the impression of a rapid continuous process.

Woman's Medical Journal, Cincinnati

July

128 Prevention of Infant Mortality. S. H. Scott, Des Moines, Ia.
129 Surgical Progress. K. Harpel, Boone, Ia.
130 Relation of Nasal and Ocular Hygiene to Neurasthenia. I. M. Scott, Waterloo, Ia.
131 Infection and Its Prophylaxis. G. F. Jerger, Waterloo, Ia.
132 Microscope and Its Place in Modern Diagnosis. P. B. Hoeve, Des Moines, Ia.
133 Medical Practice in the Orient. J. G. Ghrist, Ames, Ia.
134 Internal Medicine. J. M. Donahue, Burlington, Ia.
135 Eugenics. P. Townsend-Hanson, Marshalltown, Ia.

Boston Medical and Surgical Journal

July 20

136 *Present Position and Value of Exploratory or Operative Diagnosis. M. H. Richardson, Boston.
137 A Few Thoughts and Suggestions Based on Twenty-Five Years' Experience With Tuberculosis. V. Y. Bowditch, Boston.
138 *Mobilization of Stiffened Joints. R. B. Osgood, Boston.
139 Clinical Tests for Apraxia and Their Value in Diagnosis of Brain Disease. I. H. Coriat, Boston.
140 *Soluble Silver Oxid, Its Use in Medicine. T. W. Schaefer, Kansas City, Mo.

cases. Briefly, his mode of procedure consists of gastric lavage, dieting and elimination. For several days the patients were put on peptonized milk and milk and soda, and were thereafter given light diet. No hard-and-fast rule was laid down as to the day of treatment on which the patient was advanced to a light or full diet; each case was considered separately and dieted accordingly. The patients were not allowed up until they had been on light diet for two days. A powder containing 1 grain of mercury-with-chalk powder and 3 of sodium bicarbonate was given thrice daily. For chronic constipation, in conjunction with the above powder, Martin found magnesium sulphate in hot water, every second morning the best aperient. If a satisfactory motion was not obtained, then a soap and water enema was given. The septic condition of the mouth (which was present in every case) was treated with a mouth wash of phenol solution 1 in 80, used frequently and always immediately before and immediately after food. The patients were encouraged to drink copiously of milk and soda, weak tea and imperial drink. This treatment was quite successful in the sixteen cases, the average duration of residence in the hospital being seventeen days. One patient was treated in hospital for about ten days with the text-book drugs without improvement. Martin is of the opinion that in hyperemesis gravidarum, as in eclampsia, prophylactic treatment is of prime importance, and recommends the following as the important points: 1. Bowels to be moved at least once per diem. 2. Prevention of oral sepsis. 3. Good plain well-cooked food, daintily served at regular hours. 4. Kidneys and skin to be kept active. 5. Gentle exercise in the open air daily if the weather is at all suitable and a good supply of fresh air night and day.

7. Hypertrophied Papillæ of Morgagni, Causing
Symptoms.—The papillæ of Morgagni are [illegible]
rectal junction, and though absent in the majo
present in a considerable proportion of in
symptoms attributed by Martin to th
papillæ are irritation, pain, sensation o
He has found cauterization to be t
most effective method of destr

8. Cardiac Failure.—The
heart weakness, with di
area from [illegible]
m

used frequently. This condition, accompanied with sleeplessness, lasted for ten days, when the swelling, pain and tenderness gradually subsided, and within fourteen days from the date of injection the patient was able to walk about, and two days later all inconvenience had disappeared. When the area of swelling had lost the tenderness sufficiently to allow of palpation, it was found to be tense, hard, and fairly sharply defined to a circular area of about 18 to 20 cm. in diameter. There was no necrosis. For intravenous injection, the preparation used was antimony sodio tartrate. One-sixth of a grain in normal saline was injected into a vein of the arm. From Nov. 10, 1909, to Feb. 1, 1910, thirteen injections were given with intervals of about four days; on one occasion there was an interval of sixteen days, on another there was an interval of eight days. The thirteenth injection was received at about 11 a. m., Feb. 1, 1910.

About twenty minutes after leaving the laboratory, while on his way home the patient was suddenly seized with nausea and great weakness. He managed to reach his home unaided. Before Camac could reach him he had had a chill and violent abdominal pain. When Camac saw him he was greatly prostrated, complained of intense headache, and had a temperature of 103.6 F. This lasted five or six hours, when it subsided to normal. The blood was negative for trypanosomes. The urine showed great excess of indican, otherwise it was normal. For twelve days the weakness and abdominal distress continued, and on the thirteenth day from the former paroxysm he had, for six hours, a similar but somewhat less severe
ttack. Trypanosomes were not found at the time of this
ond fever, and have been absent on all subsequent exam-
tions. Blood and spinal fluid inoculations into monkeys,
and mice have been attended by negative results. From
9, 1909, to Jan. 31, 1910, the patient took daily by the
h 1½ to 2 grains of antimony lithium tartrate, in 3
of water, in addition to the intravenous injections.

henol Injections in Pulmonary Tuberculosis.—Vallow
0.1 to 0.2 c.c. of a 1 per cent. solution of pure phenol
lized water once each week between the shoulders.
ves that early cases treated by this method give the
lts.

on-Dioxid Snow in Trachoma.—In forty of the
Harston effected a cure in from five to eighteen
of carbon-dioxid snow. Three patients did not
seven are still under treatment. At the first
the snow is applied to each part for fifteen
r, when the patient is accustomed to the treat-
long as twenty, twenty-five and thirty seconds.
d passes off at the end of two minutes, and is
mpared to the pain caused by bluestone, silver
h like caustics. The disease is considerably
course; and the resulting scarring is con-
n when other caustics have been used.

on of Diphtheria Antitoxin by Mouth.—
Cumberlege believes to be in favor of oral
phtheria antitoxin are as follows: Results
a few hours after being given, a far
ired (Cumberlege has never given more
time; a dose of 2,000 units, followed up,
ther dose, is the usual amount given).
way, it is possible to give continued
mixture *and ordering it to be given*
as the case may be. Another point
patient treated by him by mouth has
kness, whereas either a rash or joint
ly always occurred after the few

ncet, London

July 15

-Vascular Degeneration. J. M. Bruce.
losis and Hemoptysis by Artificial
llingston.
is in Which Artificial Pneumothorax
brook.
thorax. S. V. Pearson and A. de W.
gston.
ne Pedicle of a Uterine Fibroid. C. A.
Inflammation of Thyroid. C. W. Bonney.

136. **Exploratory or Operative Diagnosis.**—Richardson emphasizes that exploratory diagnosis should be restricted in its application to those cases in which certainty of diagnosis is essential to relief, and in which, from lack of surgical remedy, error means disaster or death.

138. **Mobilization of Stiffened Joints.**—The results obtained in three cases reported by Osgood seem to show the usefulness of Baer's membrane in preventing union after complete bony ankylosis.

140. **Soluble Silver Oxid.**—Silver hydroxid is prepared when an alcoholic solution of potassium hydroxid (caustic potash) is added to an alcoholic solution of silver nitrate at a low temperature, about 40 C. Silver oxid is soluble in much distilled water. Schaefer adds silver oxid to pure distilled water, shaking the mixture frequently and thoroughly, after letting it stand for some time, and then percolating it through a wad of asbestos in a percolator. About 1 gm. of silver oxid is soluble in 3 liters of distilled water, forming a perfectly transparent and quite stable solution of silver hydroxid. This solution of silver hydroxid has a strongly metallic taste, and is, like thallium hydroxid, strongly alkaline, and precipitates from many metallic salts the oxids and hydroxids of the respective metals, and decomposes easily a solution of sodium chlorid with the formation of sodium hydroxid (caustic soda) and insoluble silver chlorid. One advantage over the ordinary salts of silver, like that of the nitrate, for instance, Schaefer says, is that this preparation of soluble silver does not contain an acid to form a salt. This form of a silver preparation is suggested to those who have faith in the therapeutic efficacy of silver in its various combinations.

Medical Record, New York

July 22

141 Constant Occurrence of Mixed Infections. W. H. Thomson, New York City.
142 Treatment of Diabetes. H. Stern, New York City.
143 Nervous Disorders and the Neurologist in Relation to the Profession and Public. T. A. Williams, Washington, D. C.
144 *Cardiospasm in Infants. W. G. Morgan, Washington, D. C.
145 Surgical Indications in Lesions of the Large Intestine. R. S. Fowler, Brooklyn.
Effect of Salvarsan on Syphilitic and Metasyphilitic Affections of the Eye and on Apparently Healthy Eyes of Syphilitic Cases. M. Rosenbaum, New York City.

144. Abstracted in The Journal, May 27, 1911, p. 1607.

Lancet-Clinic, Cincinnati

July 22

47 Extraction of Cataract in Capsule. C. [illegible] King, Cincinnati.
48 Thirteen Cases of Cataract Extracted in Capsule. V. Ray, Cincinnati.
49 Parinaud's Conjunctivitis. R. Sattler, Cincinnati.

New York Medical Journal

July 22

50 The New York Academy of Medicine. C. L. Wheeler, New York.
51 Laboratory Findings in Neurological Manifestations. D. M. Kaplan, New York.
152 Fractu[illegible] External Portion of Lower Condyle of Tibi[illegible] Fracture. M. Leale, New York.
153 Some [illegible]ing to the Last Illness of Queen Anne of England. C. G. Cumston, Boston.
154 Early Diagnosis of Cancer of the Breast. A. E. Isaacs, New York.
155 Papular Eruptions of the Buccal Mucous Membrane. H. K. Gaskill, Philadelphia.
156 Etiology, Prophylaxis and Treatment of Postanesthetic Vomiting. J. Halperin, New York.
157 Operation for Progressive Spinal Deformities in the New York Medical Journal for May 27, 1911. W. G. Elmer, Philadelphia.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

July 8

1 *Necessary Influence of Medical Profession in Home, School and State. C. Dukes.
2 *Mechanical Control of Pneumothorax During Operations on Chest. H. M. Davies.
3 Treatment of Tuberculosis by Radioactive Iodin and Menthol. L. Robinson.
4 *Cesarean Section: Report of Ten Cases. C. E. Purslow.
5 *Treatment of Excessive Vomiting of Pregnancy. J. H. Martin.
6 Treatment of Aortic Aneurysms. A. Abrams.
7 *Hypertrophied Papillæ of Morgagni Causing Rectal Symptoms. A. C. Magarey.

July 15

8 *Three Cases of Cardiac Failure Without Evident Dilatation of the Heart. T. S. Wilson.
9 Obliterative Endo-Aneurysmorrhaphy for Popliteal Aneurysm. A. E. Barker.
10 *Anthrax Treated by Sclavo's Serum. W. M. Fergusson.
11 *Intramuscular and Intravenous Injections of Antimony in Trypanosomiasis. C. N. B. Camac.
12 Treatment of Serum Sickness in Diphtheria. J. R. Keith.
13 Absorption of Iron. D. G. M. Munro.
14 *Treatment of Pulmonary Tuberculosis with Phenol Injections. H. Vallow.
15 *Fifty Cases of Trachoma Treated with Carbon Dioxid Snow. G. M. Harston.
16 *Administration of Diphtheria Antitoxin by the Mouth. G. I. Cumberlege.
17 Intrathyroid Hemorrhage Followed by Acute Dyspnea and Death. S. G. Champion and C. B. M. Aldridge.
18 Discrimination of Color. F. W. Edridge-Green.
19 Amyl Nitrite in Menorrhagia in Virgins. F. Hare.

1. **Necessary Influence of Medical Profession in Home, School and State.**—In considering the welfare of youth, Dukes says the physical conditions which are necessary for mental effort, and the modes of securing or thwarting those conditions, have not hitherto received sufficient recognition. The medical and hygienic inquiry insisted on for all children in all classes of schools is related, not merely to the promotion of a sound intellectual state, the easier acquisition of knowledge, the clearer perception of its application, and the gradual appreciation of method, in place of mechanical and unvaried rules, but also bears a definite relation to the moral development of character. So that the medical examination is a valuable asset in the hands of the educator, which should be utilized from the beginning of school life. Dukes would have the medical examiner in possession of the medical history of the previous health of the child, together with all the important items of the family history. For, although the child may be sound, yet he may be vulnerable in some special way from family predisposition or previous illness, and require protective measures. There is one method, and one method only, Dukes says, that would remove many of the unreasonable disabilities in school life—the possession by the educator of a reasonable knowledge of the elements of physiology and hygiene. But, if the teaching of hygiene in schools is to prove serviceable, it must be carried into practice in the daily life at school.

2. **Mechanical Control of Pneumothorax.**—The main features of Davies' hyperatmospheric machine are an air chamber working on the principles of a gasholder and fed from compressed air and oxygen cylinders; the air in this chamber is at a greater pressure than that required in the bronchial tubes, but after it leaves the chamber passes through a governor and the pressure is there regulated to the required amount; it then passes through Alcock's chloroform box, then through a heating chamber, and so into the trachea by an intubation tube. The expired air leaves the trachea again by the exit pipe of the intubation tube and enters the expiratory chamber, where the pressure is again regulated by a weight valve.

4. **Cesarean Section.**—All the mothers recovered in the ten cases in which Purslow operated. The children were all born alive, with one exception. In this case the patient had been in labor many hours, and forceps had been tried unsuccessfully. The child was known to be dead, as the cord was prolapsed and pulseless, and the reason that Cesarean section was done rather than craniotomy was that the head was high above the pelvic brim and the uterus in a state of violent tetanic contraction, which appeared to presage rupture; on examining the uterus after the removal of the child, an extensive effusion of blood under the peritoneum on its right lateral aspect seemed to show that rupture was already taking place, and hysterectomy was performed. Of the children born alive, two died in hospital, one on the day of its birth, and the other, which was probably premature, on the twenty-third day from diarrhea and vomiting. Of the women operated on, five were in labor at the time of operation, and of these, in two cases the membranes were ruptured; the other five were not in labor.

5. **Excessive Vomiting of Pregnancy.**—The efficacy of drugging in hyperemesis gravidarum is doubted by Martin. He prefers dieting because of the good results obtained in sixteen

cases. Briefly, his mode of procedure consists of gastric lavage, dieting and elimination. For several days the patients were put on peptonized milk and milk and soda, and were thereafter given light diet. No hard-and-fast rule was laid down as to the day of treatment on which the patient was advanced to a light or full diet; each case was considered separately and dieted accordingly. The patients were not allowed up until they had been on light diet for two days. A powder containing 1 grain of mercury-with-chalk powder and 3 of sodium bicarbonate was given thrice daily. For chronic constipation, in conjunction with the above powder, Martin found magnesium sulphate in hot water, every second morning the best aperient. If a satisfactory motion was not obtained, then a soap and water enema was given. The septic condition of the mouth (which was present in every case) was treated with a mouth wash of phenol solution 1 in 80, used frequently and always immediately before and immediately after food. The patients were encouraged to drink copiously of milk and soda, weak tea and imperial drink. This treatment was quite successful in the sixteen cases, the average duration of residence in the hospital being seventeen days. One patient was treated in hospital for about ten days with the text-book drugs without improvement. Martin is of the opinion that in hyperemesis gravidarum, as in eclampsia, prophylactic treatment is of prime importance, and recommends the following as the important points: 1. Bowels to be moved at least once per diem. 2. Prevention of oral sepsis. 3. Good plain well-cooked food, daintily served at regular hours. 4. Kidneys and skin to be kept active. 5. Gentle exercise in the open air daily if the weather is at all suitable, and a good supply of fresh air night and day.

7. **Hypertrophied Papillæ of Morgagni Causing Rectal Symptoms.**—The papillæ of Morgagni are situated at the anorectal junction, and though absent in the majority, are yet present in a considerable proportion of individuals. The symptoms attributed by Martin to these hypertrophied papillæ are irritation, pain, sensation of mass in the rectum. He has found cauterization to be the simplest, quickest and most effective method of destroying the papillæ.

8. **Cardiac Failure.**—The first case cited by Wilson showed heart weakness with diminution in the size of the cardiac area from damage to the heart muscle from the toxins or microorganisms of acute rheumatism. In this case the left ventricle was rather weaker than the right, and the latter showed a slight amount of the adolescent type of dilatation and a pulmonary artery murmur. The second case was one of the muscular failure of the heart, without evident dilatation, due to malnutrition presumably from atheroma of the coronary arteries. In this case the left ventricle was more affected than the right. The third case was exceptionally interesting owing to the limitation of fatty degeneration to the right ventricle as well as from the absence of physical signs of cardiac failure, except those associated with a relative emptiness of the heart and great vessels, and the weakness of the cardiac sounds, especially those heard over the right ventricle.

10. **Sclavo's Serum in Anthrax.**—The chief points of interest about Fergusson's case are: 1. The apparently long incubation period, ten days, if counted from the date that the patient got the blood of an anthrax-infected animal over his hand. 2. The rapid amelioration of the symptoms after the injection of the serum. Recovery without excision of the pustule. In most cases of recovery after treatment by Sclavo's serum the patients have been treated by excision as well.

11. **Antimony in Trypanosomiasis.**—The preparation used by Camac was metallic antimony in an oily medium. Ten minims, representing ½ grain, of the precipitated metallic antimony were injected into the muscles of the left buttock. Within an hour the patient experienced great local discomfort, which increased till the whole buttock was greatly swollen, painful and tender to such a degree that the least pressure of his body on the bed, where he was compelled to remain, caused him to call out with pain. Even with such cause removed the pain was so intense that morphin had to be used frequently. This condition, accompanied with sleeplessness, lasted for ten days, when the swelling, pain and tenderness gradually subsided, and within fourteen days from the date of injection the patient was able to walk about, and two days later all inconvenience had disappeared. When the area of swelling had lost the tenderness sufficiently to allow of palpation, it was found to be tense, hard, and fairly sharply defined to a circular area of about 18 to 20 cm. in diameter. There was no necrosis. For intravenous injection, the preparation used was antimony sodio tartrate. One-sixth of a grain in normal saline was injected into a vein of the arm. From Nov. 10, 1909, to Feb. 1, 1910, thirteen injections were given with intervals of about four days; on one occasion there was an interval of sixteen days, on another there was an interval of eight days. The thirteenth injection was received at about 11 a. m., Feb. 1, 1910.

About twenty minutes after leaving the laboratory, while on his way home the patient was suddenly seized with nausea and great weakness. He managed to reach his home unaided. Before Camac could reach him he had had a chill and violent abdominal pain. When Camac saw him he was greatly prostrated, complained of intense headache, and had a temperature of 103.6 F. This lasted five or six hours, when it subsided to normal. The blood was negative for trypanosomes. The urine showed great excess of indican, otherwise it was normal. For twelve days the weakness and abdominal distress continued, and on the thirteenth day from the former paroxysm he had, for six hours, a similar but somewhat less severe attack. Trypanosomes were not found at the time of this second fever, and have been absent on all subsequent examinations. Blood and spinal fluid inoculations into monkeys, rats and mice have been attended by negative results. From Oct. 9, 1909, to Jan. 31, 1910, the patient took daily by the mouth 1½ to 2 grains of antimony lithium tartrate, in 3 pints of water, in addition to the intravenous injections.

14. **Phenol Injections in Pulmonary Tuberculosis.**—Vallow injects 0.1 to 0.2 c.c. of a 1 per cent. solution of pure phenol in sterilized water once each week between the shoulders. He believes that early cases treated by this method give the best results.

15. **Carbon-Dioxid Snow in Trachoma.**—In forty of the fifty cases Harston effected a cure in from five to eighteen applications of carbon-dioxid snow. Three patients did not return and seven are still under treatment. At the first application the snow is applied to each part for fifteen seconds; later, when the patient is accustomed to the treatment, for as long as twenty, twenty-five and thirty seconds. The pain caused passes off at the end of two minutes, and is infinitesimal compared to the pain caused by bluestone, silver nitrate and such like caustics. The disease is considerably shortened in its course, and the resulting scarring is considerably less than when other caustics have been used.

16. **Administration of Diphtheria Antitoxin by Mouth.**—The points which Cumberlege believes to be in favor of oral administration of diphtheria antitoxin are as follows: Results are obtained within a few hours after being given, a far smaller dose is required (Cumberlege has never given more than 4,000 units at a time; a dose of 2,000 units, followed up, if necessary, by a further dose, is the usual amount given). By giving it in this way, it is possible to give continued dosage by making a mixture and ordering it to be given every two or four hours as the case may be. Another point in its favor is that no patient treated by him by mouth has shown signs of serum sickness, whereas either a rash or joint pains, or both, has nearly always occurred after the few injections given.

Lancet, London

July 15

20 Clinical Study of Cardio-Vascular Degeneration. J. M. Bruce.
21 Treatment of Tuberculosis and Hemoptysis by Artificial Pneumothorax. C. Lillingston.
22 Four Cases of Tuberculosis in Which Artificial Pneumothorax Was Induced. L. Colebrook.
23 Case of Artificial Pneumothorax. S. V. Pearson and A. de W. Snowden and C. Lillingston.
24 Case of Torsion of the Pedicle of a Uterine Fibroid. C. A. Morton.
25 Case of Acute Inflammation of Thyroid. C. W. Bonney.

Archives des Maladies du Cœur, etc., Paris

July, IV, No. 7, pp. 417-480

42 *Bradycardia in Course of Nephritis. D. Danielopolu.
43 Improved Methods for Determination of Arterial Pressure in Man. H. v. Recklinghausen.
44 Leukocyte-Count in Prognosis of Tuberculosis. (Valeur pronostique des rapports leucocytaires dans la tuberculose humaine.) R. Dupérié.

42. **Bradycardia in Nephritis.**—Danielopolu reports two cases of this kind. The first patient was a woman of 28 with acute nephritis coming on in the midst of good health; the pulse grew progressively slower, from 72 to 44, evidently the result of irritation of the regulating system of the heart, there being no auriculo-ventricular dissociation. The second patient had chronic nephritis and the bradycardia was likewise apparently of nervous origin in this case.

Bulletin de l'Académie de Médecine, Paris

June 27, LXXV, No. 26, pp. 684-732

45 Resonance in the Sound and Diseased Lung. (Nouvelle étude sur les résonnances tympaniques non cavitaires du poumon malade et du poumon sain.) H. de Brun.
46 *Inflammatory Tuberculosis of the Glands with an Internal Secretion. (Tuberculose inflammatoire des glandes vasculaires sanguines.) A. Poncet and R. Leriche.

46. **Inflammatory Tuberculosis of the Glands with an Internal Secretion.**—Poncet comments on the striking fact that the viscera most often affected by inflammatory tuberculosis are most rarely the seat of the specific lesions of tuberculosis. This applies especially to the glands with an internal secretion; he describes conditions in each in turn, affirming that the conditions which are generally regarded as predisposing to tuberculosis are in reality the results of long established tuberculosis. The hypophysis, the adrenals, the ovaries, the thyroid—morbid changes in any of these from inflammation due to the tubercle bacilli may entail far-reaching consequences, but the prevailing conception to date has always put the cart before the horse, as it were, and he argues to prove that inflammation from tuberculosis in these glands is responsible for the insufficiency or excessive functioning which is manifested in so many different clinical syndromes. Insufficiency of the pancreas from a latent inflammatory tuberculous process, affecting the most vulnerable parts of the gland, that is, the islands of Langerhans, explains the shocking prevalence of tuberculosis among diabetics, recent statistics showing that fully 43 per cent. of all diabetics die of tuberculosis. It has been assumed that the lungs were rendered particularly non-resistant by the fact of the existing diabetes, but Poncet is convinced that the pulmonary phthisis is merely the terminal phase; the visceral tuberculosis is of long standing, and during years it has been insidiously at work engendering the disturbances and, by them, the nutritional disorder which others assume was merely preparing the soil for tuberculosis later. Obesity, infantilism, morbid sexual phenomena, etc., are all liable to be the manifestations of a loss of balance between the glands with an internal secretion or of direct injury of these glands from the effect of the unsuspected latent tuberculosis.

Obstétrique, Paris

June, IV, No. 6, pp. 593-680

47 The Corpus Luteum and Its Internal Secretion. (Le corps jaune.) J. L. Chirié. Commenced in No. 5.
48 *Depression of the Skull in New-Born Infant Corrected by Corkscrew. (Cas d'enfoncement du crâne reduit par le tire-fond chez un nouveau-né.) E. Hauch.

48. **Obstetric Indentation of the Skull.**—In the case described there was an extensive depression of the frontal bone resulting from the application of forceps by a student. A little corkscrew, such as comes with certain makes of cologne, was sterilized and after the skin had been painted with tincture of iodin, the corkscrew was inserted into the bone with some little difficulty, but as soon as the tip had been introduced a single turn of the corkscrew was enough to give it a firm hold and the bone was thus readily drawn up into place. Hauch adds that shaving the skin and an incision are not necessary for the new-born. The dura separates readily from the bone and the procedure seems simple and harmless unless one of the rare blood-vessels in the dura should happen to be pierced, and this is easily avoided.

Presse Médicale, Paris

July 1, XIX, No. 52, pp. 545-560

49 Technic for Extension with Oblique Fractures. (L'embrochage des os dans les fractures du membre inférieur. Description d'un appareil réalisant la réduction et la contention des fractures obliques de jambe.) M. O. Lambret.
50 Operative and Peg Treatment of Fractures. (Maintien de la réduction d'une fracture. Résultats après 5 ans.) F. Jayle. (Technique d'Arbuthnot Lane.) P. Wiart.

Revue de Chirurgie, Paris

June, XXXI, No. 6, pp. 649-900

51 *Electric Burns of the Skull. (Brulures du crâne et nécroses des os du crâne par électrocution.) E. Quénu.
52 Pathogenesis of Painful Valgus Flat-Foot. (Sur la pathogénie du pied plat valgus douloureux.) R. Leriche.

51. **Electric Burns of the Skull.**—Quénu discusses the subject in general, especially the management of such cases as advocated by different writers, and then reports a case from his own practice in which he removed the sequestrum without waiting for it to be thrown off spontaneously; he is convinced that this method offers superior advantages. He cut away at once the burned soft parts and found the bone below white, dry and free from vessels, but without signs of injury. Six months later the young man returned with suppuration around the edge of the wound, but no signs of irritation of the meninges. The patch of bone was then excised; the dura below was the seat of pronounced external pachymeningitis. A flap of scalp tissue was drawn over the gap left by excision of the bone, and reexamination a year later showed that there had been regeneration of bone over part of the defect, as could easily be felt by palpation through the hair. Quénu's only regret was that he had not excised the sequestrum earlier. The principles for treatment are the same as for scalping accidents. The eschar is aseptic, to start with.

Revue de Médecine, Paris

June, XXXI, No. 6, pp. 433-512

53 *"Catching Cold" by the Tuberculous. (Les rhumes chez les tuberculeux.) C. Sabourin.
54 *Bard's Classification of Cases of Tuberculosis. R. Burnand.
55 *Spleen Treatment of Tuberculosis. (L'opothérapie splénique. Traitement spécifique de la tuberculose.) Bayle.
56 Intonation and Memory. (Note relative à la chanson du langage.) J. Lépine.
57 *Exophthalmic Goiter in Men. A. Pic and S. Bonnamour.

53. **When the Tuberculous "Catch Cold."**—Sabourin classifies in a number of groups the "false colds" of the tuberculous, that is, symptoms from sudden congestion from any cause, and which the patients ascribe to casually catching cold. In one case, for instance, a young man with Hanot's cirrhosis of the liver had profuse purulent expectoration each time as the initial symptom of recurring exacerbation of the liver trouble, while at other times a mild apical tuberculous process gave scarcely any signs of its presence. When the tuberculous actually have caught cold, the flora of the upper air passages appear in the sputum to such an extent that this is an unfavorable time for examining for tubercle bacilli. The effect of the "cold" on the tuberculous process varies, Sabourin declares, according to the care the patient takes of himself. An ordinary "cold" is an infectious catarrh following chilling of the skin, and the tuberculous who take care to harden their skin seldom take "cold," and when they do, they take rational care of themselves while it lasts. In these conditions the "cold" is generally mild and leaves no relics after it has passed off, not aggravating the pre-existing lesions. But, a neglected cold in the tuberculous who are not taking good hygienic care of themselves is liable to stimulate the tubercle bacilli to renewed activity, or complications are set up by the infectious catarrh.

54. **Classification of Cases of Tuberculosis.**—Burnand discusses Bard's classification of tuberculosis, comparing it with his extensive clinical experience. Bard recognizes four forms: the parenchymatous, interstitial, bronchial and post-pleuritic, each with from two to four or more subdivisions. The parenchymatous form may be abortive or progressive, the latter including the caseous and fibrous and transition forms. Burnand expatiates in particular on the differentiation of an incipient progressive tuberculosis from the abortive form. The signs of abortive tuberculosis are exclusively local and mani-

Journal of Tropical Medicine and Hygiene, London

July 1

26 [illegible] M. James.
27 [illegible] G. J. Pirie.
28 [illegible] Gambiense in Glossina Pal- [illegible]

27. **Etiology of Blackwater Fever.**—The interesting points in the four cases cited by Pirie were: (1) The finding in each case of subtertian rings in the peripheral blood of the patients, before the onset of the hemoglobinuria. (2) In each case quinin was taken or given in order to treat the malaria, also before the hemoglobinuria when a small dose of quinin (2¼ gr.) was given. (3) The typical malarial temperature chart of Case 4 during the continuance of the hemoglobinuria. There were no malarial parasites at this time in this patient's peripheral blood, but it looks almost certain that sporulation was taking place in some of the internal organs. In all these cases no malarial parasites, though carefully looked for, were found after the onset of the hemoglobinuria. Each of these patients had the appearance of having been well saturated with malarial poisoning. The first and third case had not taken quinin, or had taken it very irregularly. Number two had not used his mosquito net and had most probably (though he said the contrary) taken his quinin irregularly. Case 4 had taken 5 grains of quinin daily. *All of these patients developed blackwater fever more or less* severely. It appears to Pirie to be more than a mere coincidence, that in each of these cases the onset of the hemoglobinuria should have followed the attempt to treat an attack of malarial subtertian fever with quinin. He thinks that only those persons whose resistance to the hemolytic action of the malaria parasite has been reduced by the continuous sporulation of the parasite in their systems are susceptible, and that in those persons a dose of quinin may be the actual exciting cause. This condition of susceptibility is *induced by neglect of, or irregularity in, the taking of the* daily dose of 5 grains of quinin. In cases in which one has been assured that 5 grains of quinin have been taken regularly every day, Pirie suggests that it may be that certain types of constitution are so peculiarly susceptible to malarial infection that the 5 grains of quinin daily is not sufficient to prevent the continuous sporulation of the parasite in the system, though that dose may be sufficient to make the patient take to bed. These persons get anemic and debilitated, and gradually develop that unstable condition of the red blood-corpuscles that may ultimately end in an attack of blackwater fever.

Glasgow Medical Journal

July

29 Injury of the Spinal Cord Due to Rupture of Intervertebral Disk During Muscular Effort. G. S. Middleton and J. H. Teacher.
30 Tuberculosis Treated by Intravenous Injection of Ethereal Solution of Iodoform. T. W. Dewar.
31 Case of Acute Pulmonary Edema. A. W. Harrington and J. L. Cochrane.
32 Case in Which Broadbent's Sign Was Present Though No Pericardial Adhesions Existed. A. R. Paterson.

Journal of Obstetrics and Gynecology of British Empire, London

June

33 Nine Pubiotomies Performed in Rotunda Hospital During Mastership of Dr. Hastings Tweedy. J. R. Freeland.
34 *New Method of Performing Colporrhaphy. W. B. Bell.

34. **Colporrhapy.**—In Bell's method, after an oval-shaped area (about 1½ or more inches broad in the widest part) of vaginal wall has been removed, the underlying bladder is entirely separated from the remaining anterior vaginal wall. All bleeding points are then carefully tied. Mattress sutures of 40-day chromic catgut are everted. The sutures, when tied, cause large, raw under-surfaces of vaginal wall to be brought into contact, and form a ridge running the whole length of the anterior vaginal wall. Bell cautions that the mattress sutures should not be tied too tightly, nor should the anterior vaginal wall be stretched too much when the operation is completed. If it be found after suturing that the everted edges project more than ½ inch they may be trimmed down. Finally, a running overhand stitch of fine catgut may be used to unite the free margins and to prevent the exposure of a raw edge. The appearance, some months after operation, of the ridge, which widens slightly, resembles that of a normal anterior column.

Journal of Laryngology, Rhinology and Otology, London

July

35 Ocular Symptoms Produced by Nasal Disease. H. H. B. Cunningham.
36 Etiology and Operative Cure of Collapse of the Alæ Nasi. M. Halle.

Annales de l'Institut Pasteur, Paris

June, XXV, No. 6, pp. 433-496

37 *Experimental Research on Cholera. J. Choukevitch.
38 *Vaccination Against Cholera and Typhoid. E. Metchnikoff, Besredka and H. Vincent.
39 Sleeping Sickness and Its Mental Symptoms. (Démence trypanosomiasique et démence paralytique.) G. Martin.
40 Virulence of the Human Pneumococcus for the Mouse. (Etudes sur le pneumocoque.) C. Truche, A. Cramer and L. Cotoni.
41 Influence of Phenol on the Virus of Rabies. W. Sawtschenco.

37. **Experimental Research on Cholera.**—Choukevitch reports experiments on rabbits which failed to show that vaccination had any protecting influence against cholera by the intestinal route. His research further gave negative results in regard to the nitrites as an essential factor in development of *cholera, and also in regard to the anticholera cocci of Nitsch.*

38. **Prophylaxis of Cholera.**—Metchnikoff thinks that the present methods of vaccination against cholera are bound to fail as intoxication from the cholera toxins in the intestines cannot be neutralized by the methods effectual in infections. He reviews the total field of anticholera vaccination to date, saying that the statistics of the vaccination against cholera on a large scale at St. Petersburg and in India are misleading, as the vaccinators were careful to vaccinate only those least liable to contract the disease, skipping the young, the elderly and those with chronic disease and, according to directions, vaccinating only the healthy "so as not to discredit the method," and the records are defective of the vaccinated who contracted cholera. He insists that the results of experiments on animals should be given greater credit in applying the conclusions to man, and that the constant failure of Choukevitch's experimental anticholera vaccination and of Metchnikoff's attempts to immunize chimpanzees against typhoid fever should be given due weight. He relates that he has recently had a personal experience which has convinced him anew that hygienic measures are reliable as the safest and most certain means of warding off typhoid and cholera. His manservant, who prepared his breakfast and resided in the house and was the husband of the maid-servant, contracted typhoid fever. As Metchnikoff had never had typhoid he considered the question of being vaccinated but concluded to rely on hygienic measures alone. No food was served except articles that had been cooked, and an alcohol lamp or gas stove and a dish of boiling water ensured the sterility of the cup and plate and of the knife, fork and spoon. By these simple means the people in the house were protected against typhoid, no further case developing, and he is convinced that similar measures will prove equally effectual against all intestinal diseases. At St. Petersburg, he adds, boiling the drinking water protected people against cholera. Vaccination against intestinal disease should be reserved for exceptional conditions, as for forced marches in time of war. When vaccination is done it should be with scientific care to record the observations and make them resemble as much as possible exact scientific experiments. This chapter of human vaccinations, he says, is far from its definite conclusion, and experience is proving more and more the efficacy of careful and intelligent hygienic prophylaxis.

Vincent presents arguments against Metchnikoff's conclusions in regard to antityphoid vaccination, declaring that chimpanzees are so frail in a northern climate that their nonresistance may be ascribed to other causes, it being so difficult to keep monkeys alive in captivity at Paris. The results of the recent antityphoid vaccinations in America, he adds, are proving the efficacy of this method of prophylaxis which even Metchnikoff admits has a sound theoretic basis.

Archives des Maladies du Cœur, etc., Paris

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Bulletin de l'Académie de Médecine, Paris

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Obstétrique, Paris

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Revue de Chirurgie, Paris

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Journal of Tropical Medicine and Hygiene, London

July 1

26 Estivo-Autumnal Parasite. H. M. James.
27 *Etiology of Blackwater Fever. G. J. Pirie.
28 Development of Trypanosoma Gambiense in Glossina Palpalis. Sir D. Bruce.

27. **Etiology of Blackwater Fever.**—The interesting points in the four cases cited by Pirie were: (1) The finding in each case of subtertian rings in the peripheral blood of the patients, before the onset of the hemoglobinuria. (2) In each case quinin was taken or given in order to treat the malaria, also before the hemoglobinuria when a small dose of quinin (2¼ gr.) was given. (3) The typical malarial temperature chart of Case 4 during the continuance of the hemoglobinuria. There were no malarial parasites at this time in this patient's peripheral blood, but it looks almost certain that sporulation was taking place in some of the internal organs. In all these cases no malarial parasites, though carefully looked for, were found after the onset of the hemoglobinuria. Each of these patients had the appearance of having been well saturated with malarial poisoning. The first and third case had not taken quinin, or had taken it very irregularly. Number two had not used his mosquito net and had most probably (though he said the contrary) taken his quinin irregularly. Case 4 had taken 5 grains of quinin daily. All of these patients developed blackwater fever more or less severely. It appears to Pirie to be more than a mere coincidence, that in each of these cases the onset of the hemoglobinuria should have followed the attempt to treat an attack of malarial subtertian fever with quinin. He thinks that only those persons whose resistance to the hemolytic action of the malaria parasite has been reduced by the continuous sporulation of the parasite in their systems are susceptible, and that in those persons a dose of quinin may be the actual exciting cause. This condition of susceptibility is induced by neglect of, or irregularity in, the taking of the daily dose of 5 grains of quinin. In cases in which one has been assured that 5 grains of quinin have been taken regularly every day, Pirie suggests that it may be that certain types of constitution are so peculiarly susceptible to malarial infection that the 5 grains of quinin daily is not sufficient to prevent the continuous sporulation of the parasite in the system, though that dose may be sufficient to make the patient take to bed. These persons get anemic and debilitated, and gradually develop that unstable condition of the red blood-corpuscles that may ultimately end in an attack of blackwater fever.

Glasgow Medical Journal

July

29 Injury of the Spinal Cord Due to Rupture of Intervertebral Disk During Muscular Effort. G. S. Middleton and J. H. Teacher.
30 Tuberculosis Treated by Intravenous Injection of Ethereal Solution of Iodoform. T. W. Dewar.
31 Case of Acute Pulmonary Edema. A. W. Harrington and J. L. Cochrane.
32 Case in Which Broadbent's Sign Was Present Though No Pericardial Adhesions Existed. A. R. Paterson.

Journal of Obstetrics and Gynecology of British Empire, London

June

33 Nine Pubiotomies Performed in Rotunda Hospital During Mastership of Dr. Hastings Tweedy. J. R. Freeland.
34 *New Method of Performing Colporrhaphy. W. B. Bell.

34. **Colporrhapy.**—In Bell's method, after an oval-shaped area (about 1½ or more inches broad in the widest part) of vaginal wall has been removed, the underlying bladder is entirely separated from the remaining anterior vaginal wall. All bleeding points are then carefully tied. Mattress sutures of 40-day chromic catgut are everted. The sutures, when tied, cause large, raw under-surfaces of vaginal wall to be brought into contact, and form a ridge running the whole length of the anterior vaginal wall. Bell cautions that the mattress sutures should not be tied too tightly, nor should the anterior vaginal wall be stretched too much when the operation is completed. If it be found after suturing that the everted edges project more than ½ inch they may be trimmed down. Finally, a running overhand stitch of fine catgut may be used to unite the free margins and to prevent the exposure of a raw edge. The appearance, some months after operation, of the ridge, which widens slightly, resembles that of a normal anterior column.

Journal of Laryngology, Rhinology and Otology, London

July

35 Ocular Symptoms Produced by Nasal Disease. H. H. B. Cunningham.
36 Etiology and Operative Cure of Collapse of the Alæ Nasi. M. Halle.

Annales de l'Institut Pasteur, Paris

June, XXV, No. 6, pp. 433-496

37 *Experimental Research on Cholera. J. Choukevitch.
38 *Vaccination Against Cholera and Typhoid. E. Metchnikoff, Besredka and H. Vincent.
39 Sleeping Sickness and Its Mental Symptoms. (Démence trypanosomiasique et démence paralytique.) G. Martin.
40 Virulence of the Human Pneumococcus for the Mouse. (Etudes sur le pneumocoque.) C. Truche, A. Cramer and L. Cotoni.
41 Influence of Phenol on the Virus of Rabies. W. Sawtschenco.

37. **Experimental Research on Cholera.**—Choukevitch reports experiments on rabbits which failed to show that vaccination had any protecting influence against cholera by the intestinal route. His research further gave negative results in regard to the nitrites as an essential factor in development of cholera, and also in regard to the anticholera cocci of Nitsch.

38. **Prophylaxis of Cholera.**—Metchnikoff thinks that the present methods of vaccination against cholera are bound to fail as intoxication from the cholera toxins in the intestines cannot be neutralized by the methods effectual in infections. He reviews the total field of anticholera vaccination to date, saying that the statistics of the vaccination against cholera on a large scale at St. Petersburg and in India are misleading, as the vaccinators were careful to vaccinate only those least liable to contract the disease, skipping the young, the elderly and those with chronic disease and, according to directions, vaccinating only the healthy "so as not to discredit the method," and the records are defective of the vaccinated who contracted cholera. He insists that the results of experiments on animals should be given greater credit in applying the conclusions to man, and that the constant failure of Choukevitch's experimental anticholera vaccination and of Metchnikoff's attempts to immunize chimpanzees against typhoid fever *should* be given due weight. He relates that he has recently had a personal experience which has convinced him anew that hygienic measures are reliable as the safest and most certain means of warding off typhoid and cholera. His manservant, who prepared his breakfast and resided in the house and was the husband of the maid-servant, contracted typhoid fever. As Metchnikoff had never had typhoid he considered the question of being vaccinated but concluded to rely on hygienic measures alone. No food was served except articles that had been cooked, and an alcohol lamp or gas stove and a dish of boiling water ensured the sterility of the cup and plate and of the knife, fork and spoon. By these simple means the people in the house were protected against typhoid, no further case developing, and he is convinced that similar measures will prove equally effectual against all intestinal diseases. At St. Petersburg, he adds, boiling the drinking water protected people against cholera. Vaccination against intestinal disease should be reserved for exceptional conditions, as for forced marches in time of war. When vaccination is done it should be with scientific care to record the observations and make them resemble as much as possible exact scientific experiments. This chapter of human vaccinations, he says, is far from its definite conclusion, and experience is proving more and more the efficacy of careful and intelligent hygienic prophylaxis.

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festly mild. The lesion has already passed its prime and is declining when discovered, but at the same time it is better to tend a few cases of "still-born tuberculosis" rather than to let one incipient progressive case escape treatment. A young man had a slight hemoptysis in the midst of apparent health; there was no expectoration, fever, cough or loss of weight and none developed later, but a very slight tendency to dulness over the right apex was discovered and expiration was a trifle prolonged. There was also a history of congestion at the right apex in childhood and a pleurisy. The diagnosis of abortive tuberculosis was confirmed by the persisting good health to date. In a second case, similar in other respects, there was a loss of nearly 4½ pounds, an old catarrhal hawking each morning became a dry cough with a slight hemoptysis a month later, accompanied by a very slight rise in temperature. This case is classed as incipient progressive tuberculosis, as also a third typical case in which the patient had lost slightly in weight, with a briefly transient subfebrile temperature at one time. Although the local signs were insignificant, these slight general symptoms gave the alarm, confirmed by the rapidly progressive course of the disease. Burnand's article is not completed in this number.

55. **Spleen Organotherapy in Tuberculosis.**—Bayle has obtained such good results in this line that he does not hesitate to regard spleen tissue or extract as a specific method of treatment for tuberculosis. He gives 100 gm. of raw pork spleen tissue daily for three weeks and recommences again ach time after an interval of two weeks. It is readily taken n soup or preserves, he says, or extracts of the spleen may e used. He commenced this treatment about 1903, and now as a record of 150 patients with pulmonary tuberculosis nd twenty-two with bone or joint tuberculosis, all given a ystematic course of spleen organotherapy, with a complete ure in 75 per cent. of the patients, only four not showing narked benefit under it. Joly has also cured 93 per cent. of is ninety patients. All the local processes heal under this treatment ten times faster, Bayle says, than is the case under any other methods of treatment. It is readily applied and causes no febrile reaction and no by-effects. He explains its ific action by assuming some hitherto unknown function e spleen—possibly a colloid-producing function.

. **Exophthalmic Goiter in Men.**—Pic and Bonnamour rt two cases in male adults. In 563 cases of exophthalgoiter which they found on record, 109 of the patients men, less than 20 per cent., but all authors seem to gree that the affection generally has a stormier onset and runs a more serious course in men than in women, so that active measures should be instituted from the start, including prompt surgical aid if the medical prove inadequate.

Archiv für klinische Chirurgie, Berlin

XCV, No. 1, pp. 1-244. Last indexed May 6, p. 1365

58 *Krönlein's Operation for Retrobulbar Tumor. E. Bircher.
59 Two Unusual Cases of Ileus. E. Bircher.
60 Fibrin in Formation of Callus. S. Bergel and C. Pochhammer.
61 *Aseptic Suture of the Intestines. (Eine neue Modification der aseptischen Darmnaht.) M. I. Rostowzew.
62 Treatment of Fistula in the Penis. (Zur Behandlung der lippenförmigen Fisteln des männlichen Gliedes.) N. Wolkowitsch.
63 *Access to Otogenic Extradural Abscess. (Freilegung der vorderen Theile der mittleren Schädelgrube zur Erreichung ausgedehnter otogener Extraduralabscesse.) E. Ruttin.
64 Trypsin Treatment of Surgical Tuberculosis. W. Bätzner.
65 Fistula from Patent Thyroglossal Duct. (Fall von Fistula colli mediana hervorgegangen aus einem in ganzer Länge offen gebliebenen Ductus thyreoglossus.) H. Matti.
66 Case of Multilocular Cystic Retroperitoneal Tumor. E. G. Oser.
67 Displacement of the Vaginal Process and Resulting Superficial Inguinal Hernia. K. Büdinger.
68 *Postoperative Gastro-Intestinal Hemorrhages. (Magen-Darmblutungen nach Operationen.) J. R. v. Winiwarter.
69 Intravenous Ether Anesthesia. H. Kümmell.
70 General Ether Anesthesia by the Rectum. (Die Rectalnarkose mit Aetherlösungen.) K. Arnd.
71 Sterilization of the Skin. (Die Desinfection der Hände und des Operationsfeldes.) H. Küttner.
72 Regularity of Incubation Period in Infection of the Peritoneum. (Gesetzmässigkeit der Incubationszeit bei der peritonealen Infection mit nicht vorher im Körper angezüchtetem Keimmaterial.) P. L. Friedrich.

58. **Krönlein's Operation for Retrobulbar Tumor.**—Bircher adds another successful case to the 117 cases on record (up to 1905) in which this operation has been done. He urges its wider adoption, as it is comparatively simple and easy and not disfiguring.

61. **Modified Aseptic Suture of the Intestines.**—Rostowzew has slightly modified his clamp which permits suture of the clamped tissues, and shows the method of its use in thirteen illustrations.

63. **Exposure of the Middle Cranial Fossa.**—Ruttin gives an illustrated description of his simple method of access to an extensive extradural abscess originating in the middle ear. He also reports five cases in which this technic was applied with a successful outcome in three. The other patients succumbed to other complications. Even pus in the cerebrospinal fluid on lumbar puncture does not contra-indicate the operation, he declares.

68. **Postoperative Gastro-Intestinal Hemorrhages.**—Winiwarter's experience has demonstrated that hemorrhage is liable to occur in the gastro-intestinal tract from retrograde embolism or paralysis of the vessels from toxins in the blood after major operations anywhere on the body. These hemorrhages generally occur during the first three days after the operation. The changes in the stomach responsible for them rapidly heal and should not be regarded as an ulcer or precursor of an ulcer. The prognosis is grave when the hemorrhages are associated with severe general infection, as he shows by thirty cases from his experience. In treatment he recommends washing out the stomach with a silver nitrate solution. The article issues from von Eiselsberg's clinic at Vienna, this surgeon having been the first to call attention to the frequency of gastro-intestinal hemorrhage after laparotomies. Busse compiled ninety-six cases from the literature up to 1905; the thirty cases Winiwarter reviews all occurred in the clinic in the last five years. The necropsy findings confirmed the frequent causal importance of local injury in the stomach or duodenum from obstruction of veins by retrograde embolism from detached thrombi from ligated veins in the omentum or mesentery or thrombosis spreading directly from them. In rare cases injury of the central nervous system was responsible, but more frequent was a toxic paralysis of the vessels. The anesthetic, the vomiting and a general predisposition were also evident factors.

Berliner klinische Wochenschrift

July 3, XLVIII, No. 27, pp. 1213-1264

73 *Oatmeal in Diabetes. (Ueber Haferkuren bei Diabetes mellitus.) A. Magnus-Levy.
74 *Splenectomy for Idiopathic Enlargement of the Spleen. (Fall von idiopathischer Milzschwellung mit Splenektomie.) H. Senator and F. Krause.
75 *The Blood Findings in Roentgenologists. N. v. Jagic, G. Schwarz and L. v. Siebenrock.
76 Underfeeding and Growth of the New-Born. (Unterernährung und Langenwachstum beim neugeborenen Kinde.) W. Birk.
77 Spontaneous Evacuation of Teratoma by Way of the Rectum. F. Honigmann.
78 Principles of Vaccine Therapy. H. Reiter.
79 Infant Welfare from Standpoint of Campaign Against Tuberculosis. J. Landsberger.

73. **Oatmeal in Diabetes.**—Magnus-Levy's experience has demonstrated, he asserts, that the advantages of oatmeal in the diet of diabetics are mostly on the negative side; that is, by the absence of *meat.* At the same time he admits that the oatmeal starch has certain special features different from those of the other cereals, particularly evident in its behavior in the intestines. He reiterates von Noorden's caution that a course of oatmeal should always be preceded by a few days of dieting, less than 50 gm. of bread being allowed in this preliminary period. Another point is that the oatmeal diet must not be kept up for weeks at a time. Three or four days are enough, then a vegetable day, and then, after a pause of a few days, the oatmeal is resumed again as before. The details of one such case are tabulated, showing how after five oatmeal courses (250 gm. oatmeal porridge) the patient acquired tolerance under these measures and was able to eat 50 gm. of bread without glycosuria, while before this on a strict diet, he eliminated from 50 to 70 gm. of sugar and large amounts of acetone. The oatmeal is not required for cases other than the severest and moderately severe. The method to be done properly and well requires daily deter-

mination of the proportion of sugar in the urine. Certain diabetics may do equally well with rye or wheat meal instead of oatmeal. He adds that no satisfactory theory to explain the beneficial action of the cereals in diabetes has yet been presented beyond those suggested here.

74. **Idiopathic Enlargement of the Spleen.**—This is practically the last communication from the late Professor Senator. The case described resembled Banti's disease in some respects, but the absence of ascites and of the typical blood changes seemed to exclude this disease. The patient was a man of 40, and very little benefit followed splenectomy, but the persisting disturbances seem to be more in the nature of neurasthenia. Nothing organic can be found to explain them, and it is possible that his business, publishing books, may be too strenuous for him.

75. **Blood Findings in Roentgenologists.**—A Vienna specialist in *x*-ray work and another at Munich both succumbed not long ago to lymphatic leukemia, and Schwarz found the changes in the blood characteristic of this disease in a chemist long engaged in the production of radium. He also cites a fatal case in an American roentologist. This prevalence of lymphatic leukemia among roentologists was confirmed by examination of ten other, apparently healthy, roentologists. In all, the blood findings indicated some injury of the "granulocyte" system in the bone marrow or circulating blood. This is paralleled by an increase in the lymphoid elements—possibly a compensating process, but more likely the result of irritation from the action of the *x*-rays. These changes in the blood were more severe the more extensive and prolonged the work with the *x*-rays.

Deutsche medizinische Wochenschrift, Berlin

July 6, XXXVII, No. 27, pp. 1249-1296

80 The Spleen Is in Charge of the Metabolism of Iron. (Die Funktion der Milz.) L. Asher.
81 Reciprocal Relations Between Lung and Thorax with Emphysema. W. A. Freund.
82 *Enuresis and Myelodysplasia. (Enuresis nocturna und Myelodysplasie.) G. Peritz.
83 *Causal Treatment of Glycosuria and Diabetes. C. Funck.
84 Alleged Improvement in Technic for Wassermann Reaction. (Ueber die praktische Verwertbarkeit des von v. Wassermann kontrollierten Luesextraktes.) H. Stern.
85 Tincture of Soap in Sterilization of the Hands. (Alkohol und Seifenspiritus in der Händedesinfektion.) P. Sick.
86 Prophylaxis of Tuberculosis. O. Moszelk.

82. **Enuresis as a Manifestation of Myelodysplasia.**—Fuchs explains enuresis in certain cases as the result of an occult spina bifida, which in turn is due to defective development of the spinal cord, a myelodysplasia as he calls it. Peritz has examined twenty guardsmen with enuresis and two other adults and twenty children, and the Roentgen findings all confirm this assumption of defective development of the spinal cord and spine as an important factor in the enuresis. He found the myelodysplasia pronounced in 68.2 per cent. of the adults and in 35 per cent. of the children. Syndactylia was also frequent among these individuals and disturbances in the thermic sense. Instead of the normal small triangle of the sacral hiatus the opening is wide and extends high up with or without bone crossbars. The dehiscence shows up well in the radiograph. Defective development of the lower part of the spinal cord explains the success of Cathelin's epidural injections in treatment in certain cases of enuresis. The fluid distends the cicatricial tissue and crossbars and releases the nerves from the pressure of the abnormal bands, etc., and they resume normal functioning. The individual then regains volitional control of the bladder sphincter. The effect is purely mechanical, but it is almost certain to cure the enuresis in the cases of this category. The aim in treatment of enuresis should be to discover the actual cause of the condition; and if myelodysplasia is suspected, to remedy conditions in this or some similar way.

83. **Causal Treatment of Diabetes.**—Funck set himself to the task of discovering some cooperating factor besides the anomaly in the utilization of sugar as responsible for the causation of diabetes, and he states that gastro-intestinal disturbances were found unexpectedly prominent when the cases were studied from this dual causal standpoint. Instead of devoting all the energies to curing the disturbance in the metabolism of carbohydrates, he has obtained surpassing results by attacking the cause which he suspected of being responsible for the disturbance in the metabolism, as he explains in detail. He insists that the disturbance may be in the fixation as well as in the oxidation of the carbohydrates, and that unsuspected chronic gastritis or gastrogenous enteritis may be the primal factor of the disturbance, or at least responsible for exacerbations. In the severest case reported, the patient in incipient coma, he introduced a fine sound into the duodenum and flushed the intestines, sending through in thirty-eight hours 9 liters of a physiologic salt solution, at the rate of a drop a second, utilizing in this way the enormous area of mucous membrane surface in the intestine. No food was allowed but milk for four days, and after that mostly rice and milk, with hydrochloric acid as the only drug. The patient was soon free from sugar and attends to a very responsible business. Milk and rice are the main reliance in diet in this and the other cases cited.

Medizinische Klinik, Berlin

July 2, VII, No. 27, pp. 1031-1068

87 *Diabetes Mellitus. O. Minkowski.
88 *Tuberculosis of Female Genital Organs. O. v. Franqué.
89 *Hemorrhage in the Spleen. (Ueber Milzapoplexien.) L. Bleibtreu.
90 Clinical Importance of Intermittent Obstruction of Nose. (Die klinische Bedeutung der intermittierenden Nasenstenose für Atmung und Blutkreislauf.) H. Rothholz.
91 Origin and Treatment of Chronic Constipation. S. Landsberg.
92 *Hints for Thiersch Skin Flap Transplantation. (Thierschsche Hautverpflanzung.) E. Schepelmann.
93 Irritation from Denatured Alcohol Used in Sterilization of the Hands. W. N. Clemm.
94 Technic for Clinical Experiments. (Ueber einige Bedingungen des klinischen Experimentes.) M. Katzenstein.

87. **Diabetes.**—Minkowski discusses the latest conceptions in regard to the cause of the overloading of the organism with sugar, and in which organs is located the anomaly responsible for the disturbances. The reaction to the hitherto prevailing over-strict deprivation of carbohydrates is swinging to the other extreme, he fears, but he does not hesitate to admit that he has derived unmistakable benefit from a course of oatmeal diet in certain cases. In several recent experiences, patients with impending or already installed coma seemed to have been dragged from the jaws of death by the oatmeal cure. But, he continues, it is adapted only for a small group of diabetics, and the benefit derived is not permanent. He thinks the benefit from the oatmeal lies partly in the restriction of protein; the fat also should be reduced as much as possible in combating the acidosis. Restriction of protein not only does away with this source of sugar production, but it also reduces the metabolism as a whole. Naunyn, he adds, has especially emphasized the advantages of reducing the amount of the total metabolic processes as a distinct gain in many cases of diabetes. It is therefore wise to reduce the amount of muscular exercise in severe cases of diabetes. In the mild forms there is less danger of doing harm with a very strict course of dieting, while the aim is not merely to tide the patient along, but to cure or at least to increase the tolerance for sugar permanently.

88. **Tuberculosis of the Female Genitalia.**—Franqué is convinced that the frequent primary invasion of the Fallopian tubes in genital tuberculosis can be explained only by infection from the vagina in the majority of cases. It has been his experience that nodules could be palpated in the pouch of Douglas with other than tuberculous affections, and he cites some cases in which adenomatous proliferations spread from the uterus to the floor of the pelvis and to the rectum. The tuberculin reaction he also found frequently misleading with tuberculosis of the female genitalia, being negative and especially without any focal reaction in some cases which proved to be typical tuberculosis, while in others there was a positive reaction when the course of the cases and operations failed to reveal the least tuberculous lesions in the genitalia. In one case in this latter group the trouble proved to be a hematoma in each ovary in a virgin; in another there were multiple myomas in the uterus with inflammation around the uterus and a hematoma in one ovary. He inquires whether others have obtained positive tuberculin reactions with old encapsulated hematomas and hematoceles. In another case

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THE FUNDAMENTAL PRINCIPLES OF PEDIATRICS [*]

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NEW YORK

Pediatrics, at present, may be divided into two parts; first, that relating to the treatment of disease and perversion of function; second, that concerned with the production of well-developed physique in children. More attention is usually paid to the first than to the second of these branches.

If its scope were broadened, pediatrics might be defined as that branch of science which concerns itself with the animal aspect of the production of human beings. This science could then be divided into two parts; first, that devoted to the production of the highest development of the human being as an animal; second, that concerned with the management of the growing human animal when malformed, or with perverted functions, or subjected to mechanical injury, or attacked by parasitic microorganisms, or poisoned. It is evident then, that the pediatrist should be versed in general biology, bacteriology, protozoology, chemistry and physics.

While the public is not yet fully educated to the advantages of consulting a pediatrist before children are sick, it would be to the advantage of children, of parents, and of the community at large if every child during its most active period of growth were supervised by a well-equipped pediatrist, meaning by this, one who has had a broad training in general science as well as in a special department of medicine. If a physician undertakes to look after the development of a child, he should thoroughly understand the broad principles of human development and of animal life in general; it is not enough simply to be able to follow the ideas of some prominent teacher or authority.

It would prove an advantage to all physicians if the fundamental principles of the management of infants could be firmly established and thus taken out of the field of discussion. In order to attain this result, it is essential that the teachings concerning the chemistry of feeding be in accord with the general science of chemistry, that the problems of infancy falling in the province of physics be recognized as such, and that the teachings concerning animal life and development be true to those principles which have been found to apply to life in all its forms.

While medical men stand well in the forefront when it comes to the relations of human beings and animals to bacteria and protozoa, it must be confessed that they often lag behind in respect to the general care, nutrition and development of the human being in relation to his environment. The physician may broaden out to advantage at the points where science at large touches these problems.

The life-cycle of human beings, like that of all forms of animal life, may be sharply divided into two periods: first, that in which all of the food is derived from the mother's body in specialized forms; second, that in which none of the food is obtained from the mother's body but a wide variety of forms is taken. It is during the period in which the mother secretes the specialized forms of food that the tissues are produced and become differentiated into organs. When the organs of nutrition are developed, such forms of food are no longer needed and the infant has become a living machine that is able from food to build the future adult. This living machine is operated on much the same principle as a mechanical engine. It takes in fats, sugars and starches, and, by combining them with air procured through the lungs, obtains a supply of energy. This energy, when expended, appears in the form of heat which must be removed as fast as it is liberated, and it is accordingly found that all animals are provided with two cooling systems. For ordinary conditions, radiation of heat into the surrounding air is sufficient, but when the temperature of the air is nearly as high as that of the body, or higher, radiation fails to cool sufficiently, and heat is removed by being changed into latent heat through the evaporation of perspiration.

An infant taking 36 ounces of breast milk daily receives food yielding about 792 calories, or enough heat to raise the temperature of a 14-pound baby 113 C. In other words, this food will liberate enough heat to raise the temperature of the infant above the boiling-point of water. It may easily be appreciated, then, how important is the proper working of the infant's cooling system; yet how few realize that infants and all animals have cooling systems, and that the life habits of many animals are largely controlled by them! Some animals of enormous strength, such as the lion and cat tribe, are incapable of prolonged effort because they cannot get rid of the heat liberated as fast as it is produced.

A large part of the sickness among infants in hot weather may be due to ineffective cooling of the living animal motor. Imagine an infant on a hot day lying in a crib surrounded by curtains. Air movement is stopped, and the atmosphere around the infant becomes so saturated with water vapor from the evaporated perspiration that no more can evaporate, with the result that the infant's cooling system breaks down and vomiting and diarrhea may ensue. Boiling water, and vapor from it, have the same temperature, 212 F., yet the vapor has absorbed almost one thousand degrees of heat and rendered it latent or insensible. As long as the air is not there was effusion in the abdominal cavity and signs of tuberculosis in the lungs, suggesting tuberculous ascites, and the pregnancy was artificially interrupted on this account, as the tuberculin reaction had been positive, but the course of the case revealed a gall-stone trouble with no further signs of tuberculosis. Each time, however, the uterus reacted to the three tuberculin injections with hemorrhage. but no trace of tuberculosis could be found in the uterus adnexa after their removal nor in the scrapings of the uterus. In another case the test injection of tuberculin caused such serious peritonitic symptoms with ileus and collapse that the patient's life was in danger. This case warns of the necessity for care in applying the tuberculin test when there are reasons for assuming the existence of adhesions between the intestines. Schlimpert and Zöppritz have also recently called attention anew to the unreliability of the tuberculin test in affections of the female genital organs. Franqué operates on principle whenever convinced of the tuberculous nature of a tumor in the uterus adnexa, if it seems to be the only or the predominant manifestation of the disease. He thus operated in thirty-seven cases over five years ago, including nineteen with genital and eighteen with peritoneal tuberculosis, and all the patients made a smooth recovery and were much benefited with a single exception. This patient had the rectum injured during the operation, as it was closely adherent to the seriously diseased ovary, but the woman's fistula has since healed and she is now married. In three cases there was suppuration in the scar, fourteen and fifteen months later after apparently smooth primary healing, but the lesion soon healed. He regards a tuberculous process in the genital organs as a very serious lesion if left unmolested. In one case after an apparent cure under medical measures only, the process perforated into the rectum. When the uterine mucosa becomes involved the process may be regarded as "open," and the patient thus becomes a source of danger for others, to say nothing of the danger for herself of mixed infection from the intestines. He cites three new cases to show that genital tuberculosis displays scarcely any tendency to spontaneous cure; a concomitant tuberculous peritonitis healed completely. while the genital lesions persisted unmodified or gradually progressing.

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[*] President's Address before the American Pediatric Society at Mohonk Lake, N. Y., May 31, 1911.

89. **Hemorrhage in the Spleen.**—In the first case the patient, a physician of 37, had verrucous endocarditis, but it revealed no signs of its presence until embolic obstruction occurred in the spleen, the infarct leading to hemorrhage and rupture. In the second case a young man, a hemophilic with pulmonary tuberculosis, succumbed with the same symptoms, indicating hemorrhage in the spleen, rupturing the organ.

92. **Improved Technic for Thiersch Flaps.**—Schepelmann extols the advantages of tincture of iodin for sterilization of the skin before taking the flaps. Only the upper layer of the epithelium was thrown off in consequence, even when the tincture had been applied three times. Another simplification of the technic which he advocates is the use of ethyl chlorid local anesthesia, and a special knife which automatically regulates the thickness of the slice. The freezing does not seem to impair the vitality of the flaps. The frozen flap keeps smooth and flat, so that there is no trouble from its crumpling as it is transplanted. Superheated air has been doing good service in the after-treatment of the transplanted flaps.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

XXXII, Supplementary Number, pp. 1-62

95 Vaginal Operations for Extra-Uterine Pregnancy; 107 Cases. (Die vaginale Köliotomie bei ektopischer Schwangerschaft.) W. L. Jacobsohn.
96 Vaginal Operations for Uterine Tumors. (Der vaginale Weg in der operativen Behandlung der Uterusgeschwülste.) R. Kiparsky.
97 Vaginal Ovariotomies During Pregnancy; Twelve Cases. A. Korobkoff.
98 Vaginal Operations for Disease of Uterine Adnexa; 390 Cases. (Zur Frage der Behandlung der Adnexerkrankungen mittelst Coeliotomia vaginalis.) A. Markowsky.
99 Conservative Treatment by Vaginal Celiotomy. W. Preobrajenski.
100 Appendectomy Accompanying Vaginal Celiotomy; Five Cases. J. de Soboleff.
101 Vaginal Celiotomy with Uterine Cancer Accompanying Pregnancy; Seven Cases. J. Werboff.
102 Illumination of Interior of Puerperal Uterus. (Beleuchtung der Höhle des puerperalen Uterus.) A. Sitzinsky.
103 *Reasons Why Results Are Better with Vaginal Than Abdominal Celiotomies. (Wodurch werden die besseren Erfolge bei den vaginalen Koeliotomien im Vergleich mit denjenigen bei den abdominalen bedingt?) D. v. Ott.

103. **The Vaginal Method in Gynecology.**—All the articles in this supplementary number of the *Monatsschrift* are from the institute for obstetrics and gynecology in charge of Prof. von Ott at St. Petersburg. He is an ardent champion of the vaginal route for operations within the pelvis, and his communication is accompanied by numerous illustrations showing his special technic for illumination of the interior of the pelvis through the vagina and also for direct inspection of the bladder and rectum. (Some of the illustrations are the same as those reproduced in The Journal, Aug. 23, 1902, p. 458.) His experience with the 1,137 cases summarized in these various articles and those of his assistants confirm, he thinks, the numerous advantages of the vaginal over the abdominal route wherever it is practicable. Soboleff reports his experiences with appendectomy by way of the vagina secondary to a gynecologic operation, having found the illumination through the colpotomy wound ample for the purpose.

Münchener medizinische Wochenschrift

July 4, LVIII, No. 27, pp. 1433-1488

104 *Course of Wheat Flour Diet in Diabetes Mellitus. (Beitrag zur Theorie der Verwendung der Kohlehydrate in der Therapie der Zuckerkrankheit.) L. Blum.
105 *Determination of Epinephrin in the Blood. (Ueber Adrenalinbestimmung im Blute.) J. M. O'Connor.
106 *Specificity of Antianaphylaxis. M. Calvary.
107 *Fixation of Mobilized Scoliosis and Kyphosis. (Fixierung der mobilisierten Skoliose und des runden Rückens.) J. Fränkel.
108 *Phosphaturia. F. Schlagintweit.
109 Improved Staining Technic for Leukocytes. (Eine einfache Färbung der Leukozyten in der Zählkammer mit Differenzierung der einzelnen Zellarten.) W. Schüffner.
110 Improved Differential Romanowsky Staining Technic for Blood Smear Preparations. (Romanowskyfärbung von Blutausstrichpräparaten mittelst der Farblösung von Jenner.) O. L. E. de Raadt.
111 Bone Cysts. (Kasuistischer Beitrag zur Kenntnis der Knochenzysten.) Brade.
112 Technic for Intravenous Injection. (Zur Methodik der Venenpunktion und der intravenösen Injektionen.) E. Sachs.
113 Dosage of Roentgen Rays. Bucky and R. Kienböck.

104. **Carbohydrates in Diabetes.**—Blum gives a number of tables and further arguments to recapitulate and supplement those he has recently published elsewhere. (One of his articles was summarized in these columns August 5.) He is docent at Strasburg, and the work issues from the medical clinic in charge of Moritz, the scene of much pioneer research on the nutritional diseases. He reiterates anew that the aim in treatment is to put an end to the glycosuria, and that nothing is able to do this in such a simple, rapid and harmless way as restriction to oatmeal or wheat flour. But there can be no hard-and-fast rule for this; the amount of the carbohydrate allowed must vary with the severity of the disease.

105. **Determination of Epinephrin in the Blood.**—A number of physiologic experiments and tests are related by O'Connor to determine the presence of epinephrin in the blood. His research seems to indicate that blood serum contains not only epinephrin, but some other substances with similar properties. He found that the action of serum was greater on the rabbit uterus than the action of an epinephrin solution of the same concentration of epinephrin. This difference is suggested still more forcibly by the fact that the pure solution of epineprin has an inhibiting action on the intestine, while serum from the carotid, containing the same proportion of epinephrin, has a stimulating action on the bowel.

106. **Specificity of Antianaphylaxis.**—Calvary's experiments seem to indicate that an alien serum has the same action as a homologous serum in respect to production of anaphylaxis and protection against it, but that there is a great quantitative difference between them, sixty times as much of the former as of the latter being required to accomplish the same results. The conditions are similar to those with precipitation and agglutination; the response is a group response, and it occurs with special intensity exclusively with the homologous allergy-producing substance.

107. **Fixation of Mobilized Scoliosis and Kyphosis.**—Fränkel reports excellent results from treatment of curvature of the spine by a plaster bed holding the spine in extremely exaggerated over-correction, such as is obtained by the creeping

exercises which Klapp has found of such service in treatment of scoliosis. (His method of thus transforming children with deformed and weak backs into "back athletes" was described in The Journal, Feb. 24, 1906, page 625.) The creeping is the ordinary four-footed gait exaggerated to twist the spine from side to side in as wide sweeps as possible. Overcorrection by a plaster bed supplements the effects of the creeping exercises and renders the benefit permanent. In fitting the bed the aim is to utilize all the points where it is possible to obtain support, the head, shoulder, arms, pelvis and thighs all helping to maintain the over-correction. Especially important is it to fasten the swinging arm and swinging thigh as in the creeping exercise. Only by utilizing all the leverage points possible are the best results attainable. The plaster sheet is applied with the patient lying sprawled out on the table as in an exaggerated correcting creeping exercise, the head, chest and pelvis resting on supports to facilitate the application of the plaster, the arms extended and grasping supports at a certain distance above the table. The plaster bed for a patient with right convex dorsal scoliosis is shown in Figure 1, and for a left convex lumbar *scoliosis in Figure 2.* The combination of effectual and prophylactic functional treatment with a plaster bed constructed on the same principles is giving extremely gratifying results at the university clinic in Berlin in charge of Bier, where the method is being applied on a large scale. Fränkel is Bier's assistant.

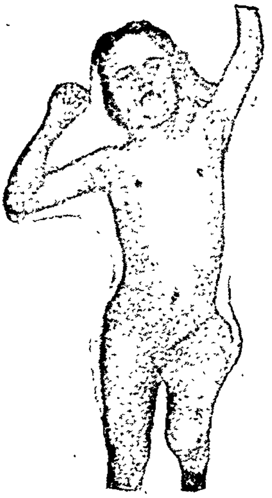
Fig. 1

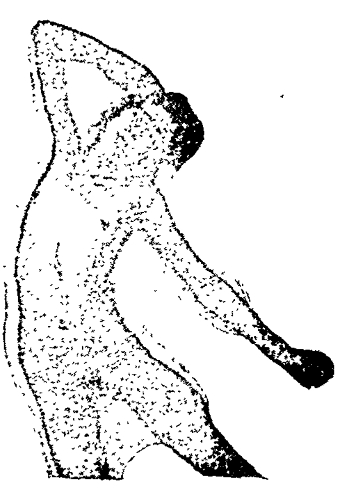
Fig. 2

108. **Phosphaturia.**—Schlagintweit discusses five types of phosphaturia, and remarks that both soft and hard alkaline concrements may be present for a long time without causing disturbances. He has had from 280 to 300 patients with phosphaturia, and has operated in nineteen or twenty of the cases. All his observation and research has but confirmed him in the opinion that phosphaturia is essentially a secretory disturbance in the kidneys of nervous character. The irritation causing the nervous disturbance may be at some other point of the urinary apparatus and act by reflex influences, or it may be due to a solitary functional anomaly in the kidney cells. That is to say, he regards phosphaturia as a local neurotic affection, and its *frequent connection* with neurasthenia, hypochondria, abdominal *atony*, *mental strain* and mania testifies further to this relationship. Boursier has reported a case of intense phosphaturia in a clergyman which subsided after correction of phimosis. Among the other evidences presented to sustain this view is the prompt elimination of large amounts of phosphates when the ureter catheter is introduced into a sound kidney pelvis, while the urine from *the other kidney contains* little, if any, phosphates, showing the influence on the secretory apparatus of the reflex stimulus from introduction of the catheter. If the urine is very alkaline and contains much phosphates, the indigo-carmin test may prove misleading, as the urine is liable to be colorless; addition of a little acid to the urine, however, counteracts the influence of the alkalies and brings out the blue tint at once. He warns, further, that a simple alimentary or neurotic phosphaturia may lead to ammoniacal cystitis or pyelitis. *Treatment of the phosphaturia* and its consequences must be both neurologic and gastro-intestinal. If no lesion can be found in the urinary tract, Schlagintweit gives hydrochloric acid internally and forbids all irritating and alkaline food and drinks. If he finds leukocytes in the urine, he alternates the hydrochloric acid with disinfectants for the urinary tract. If the phosphaturia still persists, he consults with a gastro-intestinal specialist or neurologist or both, bearing in mind that too much specialist neurologic and urologic intervention may breed serious neurasthenia. With a phosphaturic sexual neurasthenic the slightest heedless word or unnecessary instrumental meddling may avenge itself with grave consequences. The serious outcome possible with phosphaturia is instructively shown by his case of a well-to-do merchant of 39; phosphaturia developed after a gonorrheal abscess in the prostate, and for seven years he passed occasional phosphate calculi and had kidney colics, always on the left side. The pains were so severe be became addicted to morphin; then followed a period of four years free from concrements. Then the left kidney was removed, but the whole drama started anew *on the right side, with increasing morphin and cocain* addiction. Each puncture hole suppurated so that some abscess had to be opened nearly every day, and scarcely any part of the body was free from them until he succumbed. Phosphaturia is thus shown to be a subject interesting alike the practitioner, the internist, the stomach specialist, neurologist and surgeon.

Virchows Archiv, Berlin

June, CCIV, No. 3, pp. 321-474

114 Experimental Research on Myeloid Metaplasia. A. Werzberg. Commenced in No. 2.
115 Peculiar Malignant Hyperplasia of the Liver. (Regenerationshyperplasie?) T. Tschistowitsch.
116 Pathology of Musculature and Elastic Tissue in the Bladder. (Entstehung der sogen. echten Divertikel der Harnblase, insbes. des Blasengrundes, nebst Beiträgen zur Lehre von der [illegible] und elastischen Gewebe in der [illegible]
117 Relatic[illegible] of the Kidneys and of the Genital Organs. (Missbildungen der Nieren und der Geschlechtsorgane.) P. Guizzetti and F. Pariset.
118 Splenic Anemia and Infectious Granuloma. E. A. Oppenheim.
119 Deformity of Arm. (Fall einer sonderbaren angeborenen Missbildung der oberen Extremität.) A. Krokiewicz.
120 Production of Tumor Chains and Bridges with Transplantable Mouse Cancers. (Ueber die Erzeugung von Tumorketten, Kugeltumoren und Tumorbrücken beim Arbeiten mit dem transplantablen Mäusekarzinom.) H. Stahr.
121 Finer Structure of Tuberculous Giant Cells. (Tuberkulöse Riesenzellen.) T. Wakabayashi.
122 Melanosis in Calves. (Die Melanose der Kälber: Beitrag zum Krebsproblem.) A. Jaeger.
123 Vital Metachromatic Staining with Sulphurhodamin. N. Andrew.
124 Nodular Syphilitic Leptomeningitis and Syphilitic *Arteritis.* H. Beitzke.
125 Syphilitic Aortic Insufficiency. K. Koch.

Wiener klinische Wochenschrift, Vienna

July 6, XXIV, No. 27, pp. 963-1002

126 Portal of Entry for Tuberculosis. (Ueber den gegenwärtigen Stand der Eintrittspfortenfrage bei der Tuberkulose.) J. Bartel.
127 Frequency and Diagnosis of Tuberculosis of Uterus *Adnexa.* O. Bondy.

Zentralblatt für Chirurgie, Leipsic

July 8, XXXVIII, No. 27, pp. 921-952

128 *Transient Blindness After Injection of Novocain-*Suprarenin* Into the Orbit. W. Jassenetzky-Woino.
129 Treatment of Typical Fracture of the Radius. M. Friedmann.

128. **Transient Blindness After Injection of Anesthetic into the Orbit.**—Woino reports a case similar to the one recently published by Kredel. He injected a 0.5 per cent. solution of novocain-suprarenin, according to Braun's technic, into both orbits in operating for a bilateral frontal empyema. The local anesthesia had been preceded by the *scopolamin-morphin* "twilight sleep." The solution evidently caused an inflammatory effusion in the orbit, mechanically disturbing the circulation in the optic nerve and leading to transient blindness, with congestion in the lids and some temperature. The symptoms soon subsided entirely so that vision was normal by the third day. The complete restitution excludes the assumption of a neuritis.

there was effusion in the abdominal cavity and signs of tuberculosis in the lungs, suggesting tuberculous ascites, and the pregnancy was artificially interrupted on this account, as the tuberculin reaction had been positive, but the course of the case revealed a gall-stone trouble with no further signs of tuberculosis. Each time, however, the uterus reacted to the three tuberculin injections with hemorrhage, but no trace of tuberculosis could be found in the uterus adnexa after their removal nor in the scrapings of the uterus. In another case the test injection of tuberculin caused such serious peritonitic symptoms with ileus and collapse that the patient's life was in danger. This case warns of the necessity for care in applying the tuberculin test when there are reasons for assuming the existence of adhesions between the intestines. Schlimpert and Zöppritz have also recently called attention anew to the unreliability of the tuberculin test in affections of the female genital organs. Franqué operates on principle whenever convinced of the tuberculous nature of a tumor in the uterus adnexa, *if it seems to be the only or the predominant manifestation of the disease.* He thus operated in thirty-seven cases over five years ago, including nineteen with genital and eighteen with peritoneal tuberculosis, and all the patients made a smooth recovery and were much benefited with a single exception. This patient had the rectum injured during the operation, as it was closely adherent to the seriously diseased ovary, but the woman's fistula has since healed and she is now married. *In three cases there was suppuration in the scar,* fourteen and fifteen months later after apparently smooth primary healing, but the lesion soon healed. He regards a tuberculous process in the genital organs as a very serious lesion if left unmolested. In one case after an apparent cure under medical measures only, the process perforated into the rectum. When the uterine mucosa becomes involved the process may be regarded as "open," and the patient thus becomes *a source of danger for others,* to say nothing of the danger for herself of mixed infection from the intestines. He cites three new cases to show that genital tuberculosis displays scarcely any tendency to spontaneous cure; a concomitant tuberculous peritonitis healed completely, while the genital lesions persisted unmodified or gradually progressing.

89. **Hemorrhage in the Spleen.**—In the first case the patient, a physician of 37, had verrucous endocarditis, but it revealed no signs of its presence until embolic obstruction occurred in the spleen, the infarct leading to hemorrhage and rupture. In the second case a young man, a hemophilic with pulmonary tuberculosis, succumbed with the same symptoms, indicating hemorrhage in the spleen, rupturing the organ.

92. **Improved Technic for Thiersch Flaps.**—Schepelmann extols the advantages of tincture of iodin for sterilization of the skin before taking the flaps. Only the upper layer of the epithelium was thrown off in consequence, even when the tincture had been applied three times. Another simplification of the technic which he advocates is the use of ethyl chlorid local anesthesia, and a special knife which automatically regulates the thickness of the slice. *The freezing does not seem* to impair the vitality of the flaps. The frozen flap keeps smooth and flat, so that there is no trouble from its crumpling as it is transplanted. Superheated air has been doing good service in the after-treatment of the transplanted flaps.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

XXXII, Supplementary Number, pp. 1-62

95 Vaginal Operations for Extra-Uterine Pregnancy; 107 Cases. (Die vaginale Köliotomie bei ektopischer Schwangerschaft.) W. L. Jacobsohn.
96 Vaginal Operations for Uterine Tumors. (Der vaginale Weg in der operativen Behandlung der Uterusgeschwülste.) R. Kiparsky.
97 Vaginal Ovariotomies During Pregnancy; Twelve Cases. A. Korobkoff.
98 Vaginal Operations for Disease of Uterine Adnexa; 390 Cases. (Zur Frage der Behandlung der Adnexerkrankungen mittelst Coeliotomia vaginalis.) A. Markowsky.
99 Conservative Treatment by Vaginal Celiotomy. W. Preobrajenski.
100 Appendectomy Accompanying Vaginal Celiotomy; Five Cases. J. de Soboleff.
101 Vaginal Celiotomy with Uterine Cancer Accompanying Pregnancy; Seven Cases. J. Werboff.
102 Illumination of Interior of Puerperal Uterus. (Beleuchtung der Höhle des puerperalen Uterus.) A. Sitzinsky.
103 *Reasons Why Results Are Better with Vaginal Than Abdominal Celiotomies. (Wodurch werden die besseren Erfolge bei den vaginalen Koeliotomien im Vergleich mit denjenigen bei den abdominalen bedingt?) D. v. Ott.

103. **The Vaginal Method in Gynecology.**—All the articles in this supplementary number of the *Monatsschrift* are from the institute for obstetrics and gynecology in charge of Prof. von Ott at St. Petersburg. He is an ardent champion of the vaginal route for operations within the pelvis, and his communication is accompanied by numerous illustrations showing his special technic for illumination of the interior *of the pelvis through the vagina and also for direct inspection* of the bladder and rectum. (Some of the illustrations are the same as those reproduced in The Journal, Aug. 23, 1902, p. 458.) His experience with the 1,137 cases summarized in these various articles and those of his assistants confirm, he thinks, the numerous advantages of the vaginal over the abdominal route wherever it is practicable. Soboleff reports his experiences with appendectomy by way of the vagina secondary *to a gynecologic operation, having found the illumination* through the colpotomy wound ample for the purpose.

Münchener medizinische Wochenschrift

July 4, LVIII, No. 27, pp. 1433-1488

104 *Course of Wheat Flour Diet in Diabetes Mellitus. (Beitrag *zur Theorie der Verwendung der Kohlehydrate in der Ther*apie der Zuckerkrankheit.) L. Blum.
105 *Determination of Epinephrin in the Blood. (Ueber Adrenalinbestimmung im Blute.) J. M. O'Connor.
106 *Specificity of Antianaphylaxis. M. Calvary.
107 *Fixation of Mobilized Scoliosis and Kyphosis. (Fixierung der mobilisierten Skoliose und des runden Rückens.) J. Fränkel.
108 *Phosphaturia. F. Schlagintweit.
109 Improved Staining Technic for Leukocytes. (Eine einfache Färbung der Leukozyten in der Zählkammer mit Differenzierung der einzelnen Zellarten.) W. Schiffner.
110 Improved Differential Romanowsky Staining Technic for Blood Smear Preparations. (Romanowskyfärbung von Blutausstrichpräparaten mittelst der Farblösung von Jenner.) O. L. E. de Raadt.
111 Bone Cysts. (Kasuistischer Beitrag zur Kenntnis der Knochenzysten.) Brade.
112 Technic for Intravenous Injection. (Zur Methodik der Venenpunktion und der intravenösen Injektionen.) E. Sachs.
113 Dosage of Roentgen Rays. Bucky and R. Kienböck.

104. **Carbohydrates in Diabetes.**—Blum gives a number of tables and further arguments to recapitulate and supplement those he has recently published elsewhere. (One of his articles was summarized in these columns August 5.) He is docent at Strasburg, and the work issues from the medical clinic in charge of Moritz, the scene of much pioneer research on the nutritional diseases. He reiterates anew that the aim in treatment *is to put an end to the glycosuria, and that nothing is able to do this in such a simple, rapid and harmless* way as restriction to oatmeal or wheat flour. But there can be no hard-and-fast rule for this; the amount of the carbohydrate allowed must vary with the severity of the disease.

105. **Determination of Epinephrin in the Blood.**—A number of physiologic experiments and tests are related by O'Connor to determine the presence of epinephrin in the blood. His research seems to indicate that blood serum contains not *only* epinephrin, but some other substances with similar properties. He found that the action of serum was greater on the rabbit uterus than the action of an epinephrin solution of the same concentration of epinephrin. This difference is suggested still more forcibly by the fact that the pure solution of epineprin has an inhibiting action on the intestine, while serum from the carotid, containing the same proportion of epinephrin, has a *stimulating action* on the bowel.

106. **Specificity of Antianaphylaxis.**—Calvary's experiments seem to indicate that an alien serum has the same action as a homologous serum in respect to production of anaphylaxis and protection against it, but that there is a great quantitative difference between them, sixty times as much of the former as of the latter being required to accomplish the same results. The conditions are similar to those with precipita*tion and agglutination;* the response is a group response, and it occurs with special intensity exclusively with the homologous allergy-producing substance.

107. **Fixation of Mobilized Scoliosis and Kyphosis.**—Fränkel reports excellent results from treatment of curvature of the spine by a plaster bed holding the spine in extremely exaggerated over-correction, such as is obtained by the creeping

exercises which Klapp has found of such service in treatment of scoliosis. (His method of thus transforming children with deformed and weak backs into "back athletes" was described in The Journal, Feb. 24, 1906, page 625.) The creeping is the ordinary four-footed gait exaggerated to twist the spine from side to side in as wide sweeps as possible. Overcorrection by a plaster bed supplements the effects of the creeping exercises and renders the benefit permanent. In fitting the bed the aim is to utilize all the points where it is possible to obtain support, the head, shoulder, arms, pelvis and thighs all helping to maintain the over-correction. Especially important is it to fasten the swinging arm and swinging thigh as in the creeping exercise. Only by utilizing all the leverage points possible are the best results attainable. The plaster sheet is applied with the patient lying sprawled out on the table as in an exaggerated correcting creeping exercise, the head, chest and pelvis resting on supports to facilitate the application of the plaster, the arms extended and grasping supports at a certain distance above the table. The plaster bed for a patient with right convex dorsal scoliosis is shown in Figure 1, and for a left convex lumbar scoliosis in Figure 2. The combination of effectual and prophylactic functional treatment with a plaster bed constructed on the same principles is giving extremely gratifying results at the university clinic in Berlin in charge of Bier, where the method is being applied on a large scale. Fränkel is Bier's assistant.

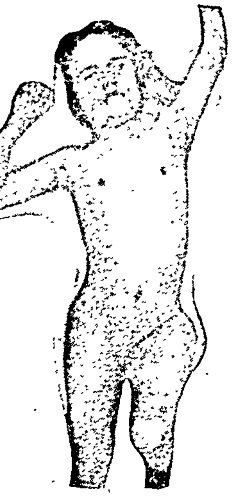
Fig. 1

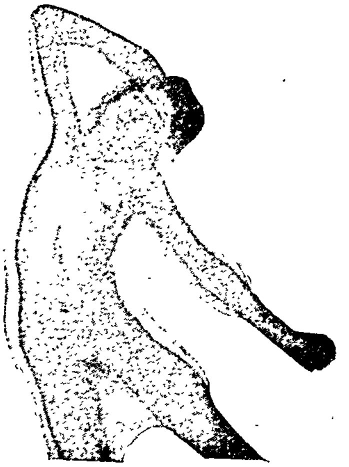
Fig. 2

108. **Phosphaturia.**—Schlagintweit discusses five types of phosphaturia, and remarks that both soft and hard alkaline concrements may be present for a long time without causing disturbances. He has had from 280 to 300 patients with phosphaturia, and has operated in nineteen or twenty of the cases. All his observation and research has but confirmed him in the opinion that phosphaturia is essentially a secretory disturbance in the kidneys of nervous character. The irritation causing the nervous disturbance may be at some other point of the urinary apparatus and act by reflex influences, or it may be due to a solitary functional anomaly in the kidney cells. That is to say, he regards phosphaturia as a local neurotic affection, and its frequent connection with neurasthenia, hypochondria, abdominal atony, mental strain and mania testifies further to this relationship. Boursier has reported a case of intense phosphaturia in a clergyman which subsided after correction of phimosis. Among the other evidences presented to sustain this view is the prompt elimination of large amounts of phosphates when the ureter catheter is introduced into a sound kidney pelvis, while the urine from the other kidney contains little, if any, phosphates, showing the influence on the secretory apparatus of the reflex stimulus from introduction of the catheter. If the urine is very alkaline and contains much phosphates, the indigo-carmin test may prove misleading, as the urine is liable to be colorless; addition of a little acid to the urine, however, counteracts the influence of the alkalies and brings out the blue tint at once. He warns, further, that a simple alimentary or neurotic phosphaturia may lead to ammoniacal cystitis or pyelitis. Treatment of the phosphaturia and its consequences must be both neurologic and gastro-intestinal. If no lesion can be found in the urinary tract, Schlagintweit gives hydrochloric acid internally and forbids all irritating and alkaline food and drinks. If he finds leukocytes in the urine, he alternates the hydrochloric acid with disinfectants for the urinary tract. If the phosphaturia still persists, he consults with a gastro-intestinal specialist or neurologist or both, bearing in mind that too much specialist neurologic and urologic intervention may breed serious neurasthenia. With a phosphaturic sexual neurasthenic the slightest heedless word or unnecessary instrumental meddling may avenge itself with grave consequences. The serious outcome possible with phosphaturia is instructively shown by his case of a well-to-do merchant of 39; phosphaturia developed after a gonorrheal abscess in the prostate, and for seven years he passed occasional phosphate calculi and had kidney colics, always on the left side. The pains were so severe he became addicted to morphin; then followed a period of four years free from concrements. Then the left kidney was removed, but the whole drama started anew on the right side, with increasing morphin and cocain addiction. Each puncture hole suppurated so that some abscess had to be opened nearly every day, and scarcely any part of the body was free from them until he succumbed. Phosphaturia is thus shown to be a subject interesting alike the practitioner, the internist, the stomach specialist, neurologist and surgeon.

Virchows Archiv, Berlin

June, CCIV, No. 3, pp. 321-474

114 Experimental Research on Myeloid Metaplasia. A. Werzberg. Commenced in No. 2.
115 Peculiar Malignant Hyperplasia of the Liver. (Regenerationshyperplasie?) T. Tschistowitsch.
116 Pathology of Musculature and Elastic Tissue in the Bladder. (Entstehung der sogen. echten Divertikel der Harnblase, insbes. des Blasengrundes, nebst Beiträgen zur Lehre von der Pathologie der Muskulatur und elastischen Gewebe in der Harnblase.) S. Sugimura.
117 Relations Between Malformation of the Kidneys and of the Genital Organs. (Missbildungen der Nieren und der Geschlechtsorgane.) P. Guizzetti and F. Pariset.
118 Splenic Anemia and Infectious Granuloma. E. A. Oppenheim.
119 Deformity of Arm. (Fall einer sonderbaren angeborenen Missbildung der oberen Extremität.) A. Krokiewicz.
120 Production of Tumor Chains and Bridges with Transplantable Mouse Cancers. (Ueber die Erzeugung von Tumorketten, Kugeltumoren und Tumorbrücken beim Arbeiten mit dem transplantablen Mäusekarzinom.) H. Stahr.
121 Finer Structure of Tuberculous Giant Cells. (Tuberkulöse Riesenzellen.) T. Wakabayashi.
122 Melanosis in Calves. (Die Melanose der Kälber: Beitrag zum Krebsproblem.) A. Jaeger.
123 Vital Metachromatic Staining with Sulphurhodamin. N. Andrew.
124 Nodular Syphilitic Leptomeningitis and Syphilitic Arteritis. H. Beitzke.
125 Syphilitic Aortic Insufficiency. K. Koch.

Wiener klinische Wochenschrift, Vienna

July 6, XXIV, No. 27, pp. 963-1002

126 Portal of Entry for Tuberculosis. (Ueber den gegenwärtigen Stand der Eintrittspfortenfrage bei der Tuberkulose.) J. Bartel.
127 Frequency and Diagnosis of Tuberculosis of Uterus Adnexa. O. Bondy.

Zentralblatt für Chirurgie, Leipsic

July 8, XXXVIII, No. 27, pp. 921-952

128 *Transient Blindness After Injection of Novocain-Suprarenin Into the Orbit. W. Jassenetzky-Woino.
129 Treatment of Typical Fracture of the Radius. M. Friedmann.

128. **Transient Blindness After Injection of Anesthetic into the Orbit.**—Woino reports a case similar to the one recently published by Kredel. He injected a 0.5 per cent. solution of novocain-suprarenin, according to Braun's technic, into both orbits in operating for a bilateral frontal empyema. The local anesthesia had been preceded by the scopolamin-morphin "twilight sleep." The solution evidently caused an inflammatory effusion in the orbit, mechanically disturbing the circulation in the optic nerve and leading to transient blindness, with congestion in the lids and some temperature. The symptoms soon subsided entirely so that vision was normal by the third day. The complete restitution excludes the assumption of a neuritis.

Zentralblatt für Gynäkologie, Leipsic

July 8, XXXV, No. 27, pp. 953-1000

130 Extraperitoneal Cesarean Section. (Für den extraperitonealen Kaiserschnitt.) O. Küstner.
131 Technic of Cesarean Section. E. Opitz.
132 *Roentotherapy in Gyniatry.* (*Zur gynäkologischen Röntgenbestrahlung.*) Albers-Schönberg.
133 Adjustable Knife in Shape of Shepherd's Crook for Decapitation. (Das Hakenmesser, ein neuartiges Dekapitationsinstrument.) R. Franz and J. Braun.
134 Hypnosis. (*Meine Schlussbemerkungen zum Thema "Hypnose."*) A. Rieck.
135 Self-Holding Speculum with Receptacle and Strainer for Curetted Scraps. (Hintere Platte mit "Fangsieb.") Weissbart.

Policlinico, Rome

July 2, XVIII, No. 27, pp. 841-872

136 Diagnosis of Pulmonary Tuberculosis. F. Fornara.
137 Pseudo-Appendicitis in Course of Pneumonia. (Crisi pseudoappendicitiche nel decorso delle polmoniti. Influenza del simpatico.) G. Carcaterra.

Ugeskrift for Læger, Copenhagen

June 15, LXXIII, No. 24, pp. 871-902

138 *Trachomatous Urethritis and Conjunctivitis from Modified Gonococci? (Fremkaldes den trakomatøse Konjunktivitis af muterede Gonokokker? Existerer en trakomatøs Uretritis?) C. F. Heerfordt.

June 22, No. 25, pp. 903-934

139 Solutions of Pepsin Lose Strength with Age. (Undersøgelser over saltsure Pepsinopløsningers Svækkelse ved Henstand.) P. Liebmann and L. Johannessen.
140 Experiences with "Albumin Milk." (Om Aeggehvidemælk.) O. Lendrop.

June 29, No. 26, pp. 935-974

141 *Survival and Causes of Death with Cancer of the Digestive Organs. (Levetid og Dødsaarsager ved Cancer i Fordøjelsesorganerne.) C. Otto.

July 6, No. 27, pp. 975-1006

142 Differential Diagnosis Between Gastric Cancer and Simple Chronic Gastritis with Achylia. S. Kemp. Concluded in No. 28.

138. **Trachomatous Urethritis?**—Heerfordt asks whether trachomatous conjunctivitis can be caused by modified gonococci and whether there is such a thing as a trachomatous urethritis, referring to Prowazek's "cell inclusions," and discussing the literature and findings on the subject, especially Hertzog's assumption that the cell inclusions are merely modified gonococci. Heerfordt thinks that the evidence to date sustains this view.

141. **Cancer in the Digestive Tract.**—Otto analyzes the findings during life and at necropsy in 196 cases of cancer in the digestive organs, studying especially the length of the period after the first symptoms were noted before the individuals applied for medical aid; also the survival and the causes of death. The tabulated details show that persons very seldom die from the cancer as cancer, but they succumb to perforation or hemorrhage or functional disturbance from compression. In fifty-four of the cases the first symptom had been trouble from stenosis or motor insufficiency in the stomach or intestine; in eight others perforation occurred without warning. Jaundice was the first symptom in a case of cancer of the duodenum, in two in the pancreas and four in the gallbladder; in fifty-four the first symptoms had suggested chronic gastritis, including eight cases of cancer of the pancreas and three of the esophagus; pains in the lumbar region had been the first symptom in five cases, the cancer being in the pancreas in all this group. There was evidently a longer or shorter period of latent development before the onset of symptoms. One table shows the conditions in regard to metastasis, glandular enlargement and extent of the cancerous involvement as compared with the number of days or months or years that had elapsed after the first symptoms had attracted attention. This interval had been from one to four years in two cases of cancer of the esophagus without metastasis, and in three with involvement of the regional glands, in four cases of cancer of the pylorus with involvement of glands, and in two in the intestines without metastasis. The cancer had not been diagnosed in fifteen of the total 196 cases, but in four of this group the intercurrent fatal disease had probably masked the symptoms. In thirty-three cases extensive malignant disease was found at necropsy within two months after the first symptoms. Of the total 196, 121 of the patients died within the first six months and the date is not known for nine others. These early fatal cases included thirty of cancer in the esophagus, eighteen at the pylorus, seven at the cardia and twenty-five in the body of the stomach. The length of the latent phase is determined mostly by the width of the organ involved—the narrower the lumen the sooner symptoms develop. Consequently, cancer in the stomach and large intestine may have a long latent period, while cancer at points easily obstructed, as at the pylorus, soon makes its presence felt. The early fatal outcome with cancer of the pancreas is due to the mechanical functional disturbances in the region. The chief aim for further study of cancer is, therefore, he says, the first period of latency before the malignant disease has reached the stage of obstruction and compression.

Books Received

Epidemic Dropsy in Calcutta. Being the First Report of an Enquiry Carried Out by Major E. D. W. Greig, M.D., D.Sc., I.M.S., Under the Direction of the Director, Central Research Institute, Kasauli Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. No. 45. Issued under the Authority of the Government of India by the Sanitary Commissioner with the Government of India, Simla. Paper. Price, 2 shillings. Pp. 46. Calcutta: Superintendent Government Printing, India, 1911.

Lehrbuch der Therapie innerer Krankheiten für Aerzte und Studierende. Volume I. Allgemeine Therapie innerer Krankheiten. By various authors. Herausgegeben von Dr. Paul Krause, Professor und Direktor der Medizinischen Universitäts-Poliklinik in Bonn und Dr. Carl Garre, Professor und Direktor der chirurgischen Universitäts-Klinik in Bonn. Paper. Price, 11.50 marks. *Pp. 758, with 345 illustrations. Vienna: Gustav Fischer,* 1911.

Evolution. By Patrick Geddes, Professor of Botany, St. Andrew's University, and J. Arthur Thomson, Regius Professor of Natural History, Aberdeen University. Joint authors of "The Evo*lution of Sex."* Cloth. Price, 75 cents net. Pp. 256. New York: Henry Holt & Co., 1911.

Practical Medical Chemistry for Physicians and Students. By Charles Platt, A.C., M.D., Ph.D., and William A. Pearson, Ph.C., Ph.D., Analytical and Consulting Chemist. Sixth Edition. Cloth. Price, *$2.50* net. Pp. 254. *Philadelphia:* John Jos. McVey, 1229 Arch Street, 1911.

Pancreatitis Aguda Hemorragica. Tesis Presentada para Optar al Grado de Doctor en Medicina. Por Pedro I. Elizalde, Ex-externo e Interno del Hospital San Roque. Universidad Nacional De Buenos Aires. Facultad De Ciencias Medicas. Buenos Aires: De E Spinelli, 1911.

A Manual of Surgery. For Students and Physicians. By Francis T. Stewart, M.D., Professor of Clinical Surgery, Jefferson Medical College. Second Edition. Cloth. Price, $4 net. Pp. 682, *with 553 illustrations.* Philadelphia: P. Blakiston's Son & Co., 1911.

The Animal World. By F. W. Gamble, F.R.S., Professor of Zoology in the University of Birmingham. With introduction by Sir Oliver Lodge, F.R.S. Cloth. Price, 75 cents net. Pp. 252, *with 36 illustrations. New York: Henry Holt & Co.,* 1911.

Verzeichnis der Vorlesungen an der Hochschule Zurich im Wintersemester, 1911-12. Oct. 17 to March 3, 1912. Paper. Pp. 35.

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THE FUNDAMENTAL PRINCIPLES OF PEDIATRICS *

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NEW YORK

Pediatrics, at present, may be divided into two parts; first, that relating to the treatment of disease and perversion of function; second, that concerned with the production of well-developed physique in children. More attention is usually paid to the first than to the second of these branches.

If its scope were broadened, pediatrics might be defined as that branch of science which concerns itself with the animal aspect of the production of human beings. This science could then be divided into two parts; first, that devoted to the production of the highest development of the human being as an animal; second, that concerned with the management of the growing human animal when malformed, or with perverted functions, or subjected to mechanical injury, or attacked by parasitic microorganisms, or poisoned. It is evident then, that the pediatrist should be versed in general biology, bacteriology, protozoology, chemistry and physics.

While the public is not yet fully educated to the advantages of consulting a pediatrist before children are sick, it would be to the advantage of children, of parents, and of the community at large if every child during its most active period of growth were supervised by a well-equipped pediatrist, meaning by this, one who has had a broad training in general science as well as in a special department of medicine. If a physician undertakes to look after the development of a child, he should thoroughly understand the broad principles of human development and of animal life in general; it is not enough simply to be able to follow the ideas of some prominent teacher or authority.

It would prove an advantage to all physicians if the fundamental principles of the management of infants could be firmly established and thus taken out of the field of discussion. In order to attain this result, it is essential that the teachings concerning the chemistry of feeding be in accord with the general science of chemistry, that the problems of infancy falling in the province of physics be recognized as such, and that the teachings concerning animal life and development be true to those principles which have been found to apply to life in all its forms.

While medical men stand well in the forefront when it comes to the relations of human beings and animals to bacteria and protozoa, it must be confessed that they often lag behind in respect to the general care, nutrition and development of the human being in relation to his environment. The physician may broaden out to advantage at the points where science at large touches these problems.

The life-cycle of human beings, like that of all forms of animal life, may be sharply divided into two periods: first, that in which all of the food is derived from the mother's body in specialized forms; second, that in which none of the food is obtained from the mother's body but a wide variety of forms is taken. It is during the period in which the mother secretes the specialized forms of food that the tissues are produced and become differentiated into organs. When the organs of nutrition are developed, such forms of food are no longer needed and the infant has become a living machine that is able from food to build the future adult. This living machine is operated on much the same principle as a mechanical engine. It takes in fats, sugars and starches, and, by combining them with air procured through the lungs, obtains a supply of energy. This energy, when expended, appears in the form of heat which must be removed as fast as it is liberated, and it is accordingly found that all animals are provided with two cooling systems. For ordinary conditions, radiation of heat into the surrounding air is sufficient, but when the temperature of the air is nearly as high as that of the body, or higher, radiation fails to cool sufficiently, and heat is removed by being changed into latent heat through the evaporation of perspiration.

An infant taking 36 ounces of breast milk daily receives food yielding about 792 calories, or enough heat to raise the temperature of a 14-pound baby 113 C. In other words, this food will liberate enough heat to raise the temperature of the infant above the boiling-point of water. It may easily be appreciated, then, how important is the proper working of the infant's cooling system; yet how few realize that infants and all animals have cooling systems, and that the life habits of many animals are largely controlled by them! Some animals of enormous strength, such as the lion and cat tribe, are incapable of prolonged effort because they cannot get rid of the heat liberated as fast as it is produced.

A large part of the sickness among infants in hot weather may be due to ineffective cooling of the living animal motor. Imagine an infant on a hot day lying in a crib surrounded by curtains. Air movement is stopped, and the atmosphere around the infant becomes so saturated with water vapor from the evaporated perspiration that no more can evaporate, with the result that the infant's cooling system breaks down and vomiting and diarrhea may ensue. Boiling water, and vapor from it, have the same temperature, 212 F., yet the vapor has absorbed almost one thousand degrees of heat and rendered it latent or insensible. As long as the air is not

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* President's Address before the American Pediatric Society at Mohonk Lake, N. Y., May 31, 1911.

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130 Extraperitoneal Cesarean Section. (Für den extraperitonealen Kaiserschnitt.) O. Küstner.
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140 Experiences with "Albumin Milk." (Om Aeggehvidemælk.) O. Lendrop.

June 29, No. 26, pp. 935-974

141 *Survival and Causes of Death with Cancer of the Digestive Organs. (Levetid og Dødsaarsager ved Cancer i Fordøjelsesorganerne.) C. Otto.

July 6, No. 27, pp. 975-1006

142 Differential Diagnosis Between Gastric Cancer and Simple Chronic Gastritis with Achylia. S. Kemp. Concluded in No. 28.

138. **Trachomatous Urethritis?**—Heerfordt asks whether trachomatous conjunctivitis can be caused by modified gonococci and whether there is such a thing as a trachomatous urethritis, referring to Prowazek's "cell inclusions," and discussing the literature and findings on the subject, especially Hertzog's assumption that the cell inclusions are merely modified gonococci. Heerfordt thinks that the evidence to date sustains this view.

141. **Cancer in the Digestive Tract.**—Otto analyzes the findings during life and at necropsy in 196 cases of cancer in the digestive organs, studying especially the length of the period after the first symptoms were noted before the individuals applied for medical aid; also the survival and the causes of death. The tabulated details show that persons very seldom die from the cancer as cancer, but they succumb to perforation or hemorrhage or functional disturbance from compression. In fifty-four of the cases the first symptom had been trouble from stenosis or motor insufficiency in the stomach or intestine; in eight others perforation occurred without warning. Jaundice was the first symptom in a case of cancer of the duodenum, in two in the pancreas and four in the gall-bladder; in fifty-four the first symptoms had suggested chronic gastritis, including eight cases of cancer of the pancreas and three of the esophagus; pains in the lumbar region had been the first symptom in five cases, the cancer being in the pancreas in all this group. There was evidently a longer or shorter period of latent development before the onset of symptoms. One table shows the conditions in regard to metastasis, glandular enlargement and extent of the cancerous involvement as compared with the number of days or months or years that had elapsed after the first symptoms had attracted attention. This interval had been from one to four years in two cases of cancer of the esophagus without metastasis, and in three with involvement of the regional glands, in four cases of cancer of the pylorus with involvement of glands, and in two in the intestines without metastasis. The cancer had not been diagnosed in fifteen of the total 196 cases, but in four of this group the intercurrent fatal disease had probably masked the symptoms. In thirty-three cases extensive malignant disease was found at necropsy within two months after the first symptoms. Of the total 196, 121 of the patients died within the first six months and the date is not known for nine others. These early fatal cases included thirty of cancer in the esophagus, eighteen at the pylorus, seven at the cardia and twenty-five in the body of the stomach. The length of the latent phase is determined mostly by the width of the organ involved—the narrower the lumen the sooner symptoms develop. Consequently, cancer in the stomach and large intestine may have a long latent period, while cancer at points easily obstructed, as at the pylorus, soon makes its presence felt. The early fatal outcome with cancer of the pancreas is due to the mechanical functional disturbances in the region. The chief aim for further study of cancer is, therefore, he says, the first period of latency before the malignant disease has reached the stage of obstruction and compression.

Books Received

Epidemic Dropsy in Calcutta. Being the First Report of an Enquiry Carried Out by Major E. D. W. Greig, M.D., D.Sc., I.M.S., Under the Direction of the Director, Central Research Institute, Kasauli Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. No. 45. Issued under the Authority of the Government of India by the Sanitary Commissioner with the Government of India, Simla. Paper. Price, 2 shillings. Pp. 46. Calcutta: Superintendent Government Printing, India, 1911.

Lehrbuch der Therapie innerer Krankheiten für Aerzte und Studierende. Volume I. Allgemeine Therapie innerer Krankheiten. By various authors. Herausgegeben von Dr. Paul Krause, Professor und Direktor der Medizinischen Universitäts-Poliklinik in Bonn und Dr. Carl Garre, Professor und Direktor der chirurgischen Universitäts-Klinik in Bonn. Paper. Price, 11.50 marks. Pp. 758, with 345 illustrations. Vienna: Gustav Fischer, 1911.

Evolution. By Patrick Geddes, Professor of Botany, St. Andrew's University, and J. Arthur Thomson, Regius Professor of Natural History, Aberdeen University. Joint authors of "The Evolution of Sex." Cloth. Price, 75 cents net. Pp. 256. New York: Henry Holt & Co., 1911.

Practical Medical Chemistry for Physicians and Students. By Charles Platt, A.C., M.D., Ph.D., and William A. Pearson, Ph.C., Ph.D., Analytical and Consulting Chemist. Sixth Edition. Cloth. Price, $2.50 net. Pp. 254. Philadelphia: John Jos. McVey, 1229 Arch Street, 1911.

Pancreatitis Aguda Hemorragica. Tesis Presentada para Optar al Grado de Doctor en Medicina. Por Pedro I. Elizalde, Ex-externo e interno del Hospital San Roque. Universidad Nacional De Buenos Aires. Facultad De Ciencias Medicas. Buenos Aires: De E. Spinelli, 1911.

A Manual of Surgery. For Students and Physicians. By Francis T Stewart, M.D., Professor of Clinical Surgery, Jefferson Medical College. Second Edition. Cloth. Price, $4 net. Pp. 682, with 553 illustrations. Philadelphia: P. Blakiston's Son & Co., 1911

The Animal World. By F. W. Gamble, F.R.S., Professor of Zoology in the University of Birmingham. With Introduction by Sir Oliver Lodge, F.R.S. Cloth. Price, 75 cents net. Pp. 252, with 36 illustrations. New York: Henry Holt & Co., 1911.

Verzeichnis der Vorlesungen an der Hochschule Zurich im Wintersemester, 1911-12. Oct. 17 to March 3, 1912. Paper. Pp. 35.

New Patents

New Patents of Interest to Physicans

982462 Electric incubator and nursery. Adolf Beckstrom, Lewiston, Mont.
982232 Medical applicator. John A. Bartholomew, Chicago.
982289 Adjustable invalid cot. Royal R. Miller, Pueblo, Colo.
982552 X-ray tube. Harry F. Waite, New York, N. Y.
982554 Matrix ear file. Gustav E. Wallin, Kansas City, Mo.
983223 Sleeping bag. Ezra H. Fitch, Montclair, N. J.
982807 Invalid lifting apparatus. Jesse Fravel, Dayton, Ohio.
982996 Wire spring stem pessary. George E. Rowell, San Bernardino, Cal.
982997 Ambulance. Irone H. Russell, Washington, D. C.
982903 Atomizer. John S. Thurman, St. Louis.
983806 Oxygen generator. Richard C. Bradley, Shreveport, La.
983547 Anatomical skeleton. Charles E. Fleck, Orange, N. J.
983360 X-ray frame. Amedee Granger, New Orleans.
983368 Skull cutter. Frank Holt, Chicago.
983721 Ankle brace. Charles H. Irish, Zion City, Ill.
983657 Electromagnetic vibrator. Chester H. Thordarson, Chicago.
13199 (Reissue.) Apparatus for killing bacteria in liquids. Joseph Willmann, Skelton, Conn.
984179 Artificial hand. Leonard Aydt, Seattle, Wash.
983871 Syringe. Joseph J. Brin, Chicago.
984374 Combined bed and stretcher. Edward J. Jardin, Brooklyn.
984003 Clinical thermometer case.. Joseph C. Jenkins, Lititz, Pa.
984148 Syringe. Joseph F. Milligan, Cheyenne, Wyo.
984106 Antiseptic composition. Ernest D. Reed, Dublin, Ind.
984030 Gas liquefying apparatus for demonstration purposes. Wilhelm P. Schneider, Hamburg, Germany.
984037 Syringe. John H. Sheets, New York.
41155 Soda dispensing fountain. David E. J. Noonan, St. Louis

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THE FUNDAMENTAL PRINCIPLES OF PEDIATRICS *

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NEW YORK

Pediatrics, at present, may be divided into two parts; first, that relating to the treatment of disease and perversion of function; second, that concerned with the production of well-developed physique in children. More attention is usually paid to the first than to the second of these branches.

If its scope were broadened, pediatrics might be defined as that branch of science which concerns itself with the animal aspect of the production of human beings. This science could then be divided into two parts; first, that devoted to the production of the highest development of the human being as an animal; second, that concerned with the management of the growing human animal when malformed, or with perverted functions, or subjected to mechanical injury, or attacked by parasitic microorganisms, or poisoned. It is evident then, that the pediatrist should be versed in general biology, bacteriology, protozoology, chemistry and physics.

While the public is not yet fully educated to the advantages of consulting a pediatrist before children are sick, it would be to the advantage of children, of parents, and of the community at large if every child during its most active period of growth were supervised by a well-equipped pediatrist, meaning by this, one who has had a broad training in general science as well as in a special department of medicine. If a physician undertakes to look after the development of a child, he should thoroughly understand the broad principles of human development and of animal life in general; it is not enough simply to be able to follow the ideas of some prominent teacher or authority.

It would prove an advantage to all physicians if the fundamental principles of the management of infants could be firmly established and thus taken out of the field of discussion. In order to attain this result, it is essential that the teachings concerning the chemistry of feeding be in accord with the general science of chemistry, that the problems of infancy falling in the province of physics be recognized as such, and that the teachings concerning animal life and development be true to those principles which have been found to apply to life in all its forms.

While medical men stand well in the forefront when it comes to the relations of human beings and animals to bacteria and protozoa, it must be confessed that they often lag behind in respect to the general care, nutrition and development of the human being in relation to his environment. The physician may broaden out to advantage at the points where science at large touches these problems.

The life-cycle of human beings, like that of all forms of animal life, may be sharply divided into two periods: first, that in which all of the food is derived from the mother's body in specialized forms; second, that in which none of the food is obtained from the mother's body but a wide variety of forms is taken. It is during the period in which the mother secretes the specialized forms of food that the tissues are produced and become differentiated into organs. When the organs of nutrition are developed, such forms of food are no longer needed and the infant has become a living machine that is able from food to build the future adult. This living machine is operated on much the same principle as a mechanical engine. It takes in fats, sugars and starches, and, by combining them with air procured through the lungs, obtains a supply of energy. This energy, when expended, appears in the form of heat which must be removed as fast as it is liberated, and it is accordingly found that all animals are provided with two cooling systems. For ordinary conditions, radiation of heat into the surrounding air is sufficient, but when the temperature of the air is nearly as high as that of the body, or higher, radiation fails to cool sufficiently, and heat is removed by being changed into latent heat through the evaporation of perspiration.

An infant taking 36 ounces of breast milk daily receives food yielding about 792 calories, or enough heat to raise the temperature of a 14-pound baby 113 C. In other words, this food will liberate enough heat to raise the temperature of the infant above the boiling-point of water. It may easily be appreciated, then, how important is the proper working of the infant's cooling system; yet how few realize that infants and all animals have cooling systems, and that the life habits of many animals are largely controlled by them! Some animals of enormous strength, such as the lion and cat tribe, are incapable of prolonged effort because they cannot get rid of the heat liberated as fast as it is produced.

A large part of the sickness among infants in hot weather may be due to ineffective cooling of the living animal motor. Imagine an infant on a hot day lying in a crib surrounded by curtains. Air movement is stopped, and the atmosphere around the infant becomes so saturated with water vapor from the evaporated perspiration that no more can evaporate, with the result that the infant's cooling system breaks down and vomiting and diarrhea may ensue. Boiling water, and vapor from it, have the same temperature, 212 F., yet the vapor has absorbed almost one thousand degrees of heat and rendered it latent or insensible. As long as the air is not saturated with vapor, or is nearly saturated, but in motion, this change from sensible to insensible heat takes place and it is perfectly feasible to be cool and comfortable in air whose temperature is above 100 F., provided this air is dry or in motion and thus capable of vaporizing perspiration. In fact, one can be kept quite cool by a current of hot dry air if a wet cloth is kept next to the skin.

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* President's Address before the American Pediatric Society at Mohonk Lake, N. Y., May 31, 1911.

When an infant has been subjected to conditions such as render it unable to liberate its heat properly, the treatment that has proved most successful is to stop all food temporarily, thereby reducing heat production; to give the infant baths to remove heat; to keep it quiet to prevent the expenditure of energy which liberates heat; and to send it to the country where the air is cool or dry or in motion; then, unless there is very acute poisoning, recovery usually takes place.

No doubt bacteria play a large part in the summer sickness of infants, but as they are present in food at all seasons, it is evident that the heat gives them an advantage over the infant which they do not possess in cooler weather, or when conditions are favorable for the infant to rid itself of the heat. Restoring the infant to normal action causes the bacteria to lose their effect.

In hot weather food cannot be needed for its caloric or heating effect; it is required rather for its energy content, and the teaching should be in accordance with this fact. Feeding for energy is, to a large extent, a branch of physics; in the management of summer cases a knowledge of the principles of physics would thus often be of greater value than acquaintance with many of the drugs so often employed. The protein and mineral matter are for building materials and repair, and chemical composition is here the controlling factor, as far as potential value is concerned. It is, however, entirely out of place to value protein by its energy or caloric contents. What would be thought of an architect who determined the suitability of timber for a building by the amount of heat it would produce if burned? The feeding of energy and of building materials must be done with a distinct idea of the purposes they are to serve.

The emphasis on the necessity of plenty of fresh air should not be looked on as a hobby. The animal motor operates by a combination of oxygen in the air and the fats and carbohydrates of the food, and one is useless without the other. Insufficient air means incomplete combustion, and the products of incomplete combustion clog up the animal motor. Air is thus as essential as food.

In managing the nutrition of the infant much can be learned from general biology. In all forms of animal life the mother supplies specialized forms of food to the young until their digestive organs are developed, and no method of feeding that ignores this fact can be of the highest value. Many years ago I called attention to the fact that the protein of all milks has a developmental as well as a nutritive function. An artificial food for infants should contain the building elements and energy foods in about the same quantities as those in mother's milk if the best development is to result. Attention should likewise be paid to see that the food behaves in the stomach like mother's milk, but it will not do to compare foods by their chemical analyses alone, as it has long been known that two foods of the same chemical composition might not be interchangeable in nutritive value, and there are factors involved in feeding that chemical analysis cannot explain. The reason for this may be found in some of the later work in chemistry, as exemplified in the following illustrations: It is a curious fact that two clays, having the same chemical composition, may have entirely different physical properties, and that clay near the mouth of a river will have different properties from the same substance further up the stream, the two clays being derived from the same parent rock and having similar compositions. Acheson reasoned that this difference might be due to the fact that the clay down stream had come into contact with washings from organic matter, and by adding vegetable infusions to the upstream clay he was able to increase its plasticity and make it act like the clay down stream. Here is a practical illustration of what profound changes the most insignificant additions to a substance may produce. Bodies that are insoluble in water may be rendered soluble if certain foreign substances are present in the most minute quantities. Duncan gives the following illustration:

> The mere presence of a trace of a foreign body may make an insoluble body soluble. The following puzzling fact is known to but few: chromic chlorid is a curious substance that exists in two forms, soluble and insoluble. The insoluble violet crystals may be left under water for days unaffected . . . but drop into the test-tube a trace of chromous chlorid, even 0.000025 of a gram, and the violet crystals hasten to bury themselves in the water; the temperature rises and the indigo-blue liquid results. This is an example of what is called physical catalysis, for the chemical properties of the chromic chlorid are the same after as before; it has simply passed into solution. Turning now to chemical catalysis, we are confused by the number of examples, for, owing to the recent ferment of investigation, it would take a dictionary to chronicle them.

Remarkable results have been obtained in industrial chemistry by the use of such catalysts. Substances which have been obtained indirectly by the aid of plants can now be made artificially. Heretofore, when the necessary ingredients to form desired substances were brought together, they would not combine. There was something in the plants, however, that would cause such combinations to take place. Indigo has been obtained from the indigo plant, but it was found that the mere presence of a trace of copper or mercury would make the ingredients combine in the laboratory, and now it is made artificially. Platinum black is used to cause the ingredients of formaldehyd to combine, and other substances will cause metallic gold, silver, platinum and graphite to go into aqueous solution called colloidal solution.

How many factors in feeding may be influenced by such apparent trifles remain to be discovered, but that numbers of the vital processes are thus controlled is beyond doubt. Hunt makes the following statement:

> Diet has a marked effect on the resistance of animals to certain poisons; the resistance of some animals may be increased forty-fold by changes in diet. Certain diets, notably dextrose, oatmeal, liver, and kidney, greatly increase the resistance of mice to acetonitrile; their effect is similar in this respect to the administration of thyroid; the effect of an oatmeal diet in increasing the resistance of certain animals to acetonitrile is probably due, in part, to a specific effect of the diet on the thyroid gland; this is an illustration of how an internal secretion may be modified in a definite manner by diet. . . . The experiments show that foods such as enter largely into the daily diet of man have most pronounced effects on the resistance of animals to several poisons; they produce changes in metabolism which are not readily detectable by methods ordinarily used in metabolism studies. The ease and rapidity with which certain changes in function

are caused by diet are in striking contrast with the essentially negative results obtained by the chemical analyses of animals fed on different diets.

According to Alexander:

> Bald chemical analyses cannot express the digestibility and availability of a food any more than it can express or explain the action of the digestive juices or, in fact, any other physiologic process. In all these processes can be traced the influence of the colloidal substances, present in the body, whose effects are quite out of proportion to their small mass. As soon as we approach the chemistry of the living organism, we are confronted with problems of colloid chemistry, and there is no doubt but that a correct understanding and application of its principles will throw much light on many other obscure problems in biology, physiology and medicine.

These foreign bodies, whose mere presence causes such profound changes, are called catalysts and a peculiar property which they possess is that, at times, they lose their efficiency. When this occurs, they are said to be poisoned. After a time they may recover their power to produce the changes they formerly caused.

The question as to what this has to do with the practical management of infants may here be raised. McCullom conducted some experiments to see how simple in form the food elements could remain and still be combined in the animal body, it long having been believed that animals could not live for any length of time and develop on the pure food elements. Pure fat, sugar, starch, ash-free protein and the ash of milk were used, filter-paper being employed to give bulk. For a time there was gain, then a standstill and finally a loss. By adding successively such flavoring agents as cinnamon, celery, vanilla, caramelized sugar, distillate from strong cheese and salt, it was found that the loss could be prevented. Leaving the fat out of the food temporarily or changing its form, or altering the sugar content of the food, was found to improve the utilization of the food. "In one instance toward the end of the experiment, bacon fat, freshly rendered and filtered through paper, induced hearty consumption when every other means failed." His conclusions were as follows:

> Without palatability the ration may possess all the necessary food ingredients and yet fail to nourish an animal properly. The failure of previous efforts to maintain animals on a mixture of relatively pure, proximate constituents of our foodstuffs was due to lack of palatability of such mixtures. When sufficient care is given to changing the character and flavor of the food supplied in such simple mixtures, it is possible to induce an appreciable amount of growth.

Here is an illustration of the action of catalysts in practical feeding. One worked well until it became poisoned or lost its efficiency. A change in the form or flavor of the food brought another catalyst into action, and it in turn lost its efficacy. The beneficial effect of variety of diet has long been known, but the scientific basis on which it rested has not been suspected hitherto. We often get the same good effect by changing the flavor of the infant's food or by altering the form of the food elements, especially the carbohydrates.

Such facts as these could never have been explained by practical infant-feeding, or rather, the principles could not have been evolved; and this shows the advantage of being familiar with general science and applying principles worked out elsewhere to the management of infants.

That a profound change in the function of the human digestive organs may be brought about by changing the character of the food has been shown by Yakawa, who fed young men who had been vegetarians all their lives a diet composed largely of beef, milk, eggs and rice. The fats, and particularly the protein, were not well assimilated. There was loss of appetite, lassitude and constipation. Such a result is at variance with the belief held generally that animal protein is better digested than vegetable protein. But this case is an illustration of the biologic principle that all living things tend to adapt themselves to their food and environment. Those who have been trained to digest animal protein develop digestive organs well fitted for this purpose and digest it better than they do vegetable protein, and vice versa.

It has been said that one principle is worth many facts, for it covers them all. If the few main principles in pediatrics could be grasped, a large number of facts might be forgotten to advantage. Pediatrics cannot take the position it deserves, until those who practice it recognize that their work is to help infants adapt themselves to their food and environment, and this calls for at least an elementary knowledge of general biology, bacteriology, protozoology, chemistry and physics. We must broaden our scientific outlook.

Medicine has always advanced more rapidly as an art than as a science, partly because it has not been sufficiently rooted in the principles and methods of general science. The extreme growth and differentiation of specialism has here acted both as cause and effect. Ingenious and successful technic, rather than the more laborious and widely applicable study of underlying principles, has often satisfied. The specialties themselves have been accepted without much appreciation of their relative values. Those of fundamental importance are grouped with others having only local forms that minister to comfort and utility, but not often directly to life itself. It is thus right to make a distinction between a major and a minor specialty. Of the former, pediatrics should take the highest place, as it deals with the first and formative period of life, and consequently renders the most lasting service to the race. It is time that a new account of stock be taken of the various branches of medicine and that they be lined up with a truer perspective as to relative importance. Thus will the dignity and importance of pediatrics be made clear to the profession and the public. It offers to-day the most promising field for advanced work in scientific and experimental medicine. Fully to occupy this field, its followers must apply the general and broad methods of science at large to the solution of its problems.

One of the deepest sayings of Sir Francis Bacon was: "The end of philosophy is the intuition of unity." Let us apply this broad truth to science. The end and object of all science is the recognition of unity.

Primitive Man and Disinfection.—Man has an instinctive repugnance to all noxious odors, and from the earliest time has sought to mask their presence by the use of aromatic substances, says Dreyfus (*Jour. Am. Pub. Health Assn.*). The use of perfumes is probably a relic of the effort of primitive man to counteract this evil. Many religious ceremonies, such as the burning of incense, have also the same origin, and embalming as practiced by the Egyptians is a good example of successful attempts to arrest putrefaction in very early ages. Sulphur has been employed from the earliest times, and Homer describes its use in religious ceremonies. In the time of Hippocrates, sulphur was regarded as an antidote against the plague. Ovid makes mention of the fact that sulphur was employed by the shepherds of his time for bleaching fleeces and for purifying their wool from contagious diseases. During the plague of Athens, Acron, according to Plutarch, stayed the spread of the epidemic by lighting fires in the middle of the public places and in the streets where deaths had occurred; and the lighting of fires during times of plague has been customary until quite recent times.

Dr. Robert Bell's Library

NEW MECHANICAL DEVICES FOR CLOSING WOUNDS *

E. WYLLYS ANDREWS, M.D.

CHICAGO

Comparing the work in various clinics, it is found that some men suture wounds rapidly. Most men require a large percentage of the total time for final closure, and nearly all take longer for this step than they themselves realize or would believe unless they have been timed by the watch.

In a series of observations made for me on my own work and that of other surgeons, the time was found to be so unevenly divided that the internal operative work often was briefer than the elaborate wound closure. Thus the neat and rapid interior work was robbed of its chief value to the patient by prolonging the total operation and anesthesia.

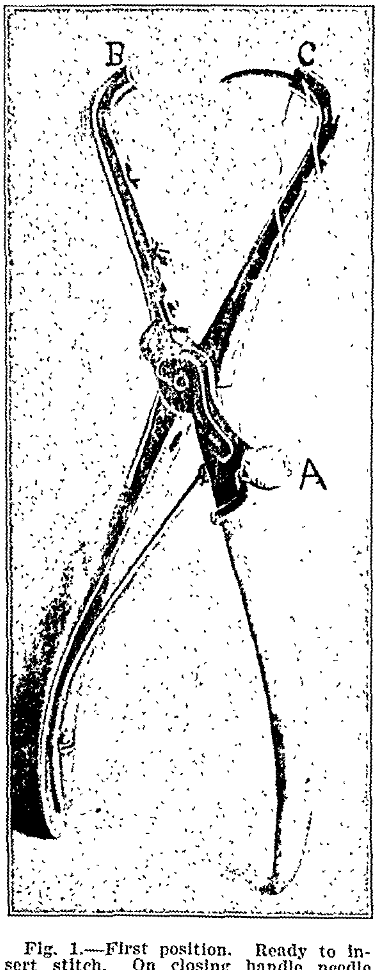

Fig. 1.—First position. Ready to insert stitch. On closing handle needle passes flaps and is seized automatically by opposite blade carrying thread through tissue. On pressing catch A needle is released at B and returns to C, ready for next stitch.

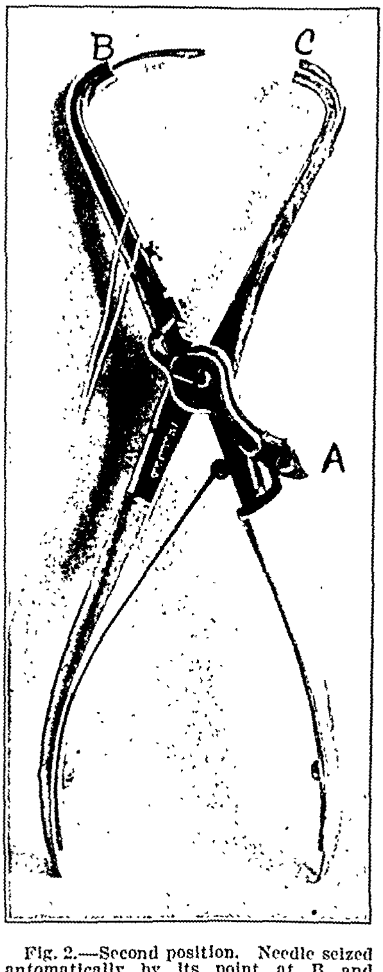

Fig. 2.—Second position. Needle seized automatically by its point at B and pulled through tissue by closing and opening handle. On pressing thumb catch A needle returns to first position, C.

Methods for hastening wound closure may be good or bad in proportion to their safety and nicety of adjustment, but they must not involve any sacrifice of the improved modern principles of anatomical restoration of layers whether in the extremities or the trunk.

On the other hand, if with equal security and asepsis wounds may be brought together in a briefer time or with more smoothness and less trauma, a new factor of safety will be added tending to the welfare of the patient.

Thus the use of Michel skin clips will shorten the time of a herniotomy or an appendectomy about five minutes. In spite of the fact that a few men can do the whole operation in that time, more men take fifteen minutes or longer, and some excellent operators would be surprised to be told that they take ten to twenty minutes by the watch for their careful wound closure. This is admirable from an anatomical standpoint. It is characteristic of some very conscientious workers and gives beautiful healing, but it is wrong to ignore the injurious effect of prolonging anesthesia even in simple cases.

On the other hand, in the very swiftest closure I have seen, as in the abdominal wall in laparotomies done with spectacular swiftness, I have been led to suspect that the suture work on the layers may have been slighted to gain speed. This may be unjust, since most of the very rapid work is done by men of enormous experience, but it is an inherent fault of hand suturing that it must be somewhat slow or else somewhat imperfect. Long practice with the needle gives speed, but only up to a certain point. To get beyond this point we must adopt new devices.

Reminding you again of the skin clips—five or six of them will close a three or four-inch opening in a quarter or half a minute. If we could only use them for all the layers, sixty seconds would be ample for a deliberate layer-by-layer closure of the abdominal wall. To make this possible, I have devised clips of absorbable metal for buried suture and for suturing blood-vessels, as described later in this paper. Before alluding to this, I wish to call attention to the possibility of sewing wounds by a machine.

For a number of years I have tried to perfect a sewing machine for wounds constructed with platen, fixed needle and bobbin or shuttle. In spite of the fact that several small hand and toy machines are made small enough to handle easily, none of them seems capable of being brought into cavities or depths of wounds or can be easily sterilized. These machines place only mattress stitches, whether one or two threads are used. They could not easily be adapted to overhand glover or interrupted stitching. After considerable discussion and study of the problem with the manufacturers of various machines, I became satisfied that we could never design a shuttle machine that would be anything but clumsy, heavy and inefficient, and therefore, dangerous about a wound.

It is different with forceps. With them we are familiar and know that we can place them in all sorts of deep and superficial locations even more readily than the hands or fingers. If forceps could be made automatically to insert stitches carrying threads by merely opening and closing their blades, we should combine some of the speed and accuracy of machine-sewing and the nicety and safety of hand-sewing.

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* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

After some years of experimenting and disappointment, I have turned to forceps and needle as a *sine qua non* for surgical work, and have constructed several forms of forceps which will actually sew the skin and deep layers more smoothly and rapidly than by hand. Of course they are equally adapted for placing deep ligatures, single or multiple.

The object of these instruments is to gain speed, and, incidentally, regularity of spacing and of tension in the approximated edges. We must admit that this is as likely to be a drawback as an advantage. No machine can have the delicacy and tactile sense of the human fingers; but how much time can we afford to sacrifice for careful suturing by the fingers? Certainly in fine closure like the Lembert stitch in the hollow viscera it is invaluable. In external work, in which the fingers are little used, but mostly needle forceps, a machine sewed wound may well be neater and more delicately adjusted than one sewn by hand in equal time.

Classes of stitches better placed by machine than by the fingers or needle forceps are:

1. "Deep "suture ligatures," single or multiple, around vascular pedicles, as the mesentery meso-appendix, broad ligament, hernial sac, etc. In the depths of a wound or cavity with the sewing forceps one does not have to see the needle point. The forceps automatically and infallibly grasps it and draws it through. It is a particularly rapid method of cross-suturing a wide pedicle of any sort.
2. Straight lines of suture, in which accuracy of spacing, rather than accuracy of fitting, is desirable. Such wounds are abdominal incisions, both muscle-splitting and in the middle line. These are rarely closed now by single rows of deep stitches, but almost universally by anatomical restoration of the concentric layers from within outward. The suturing machine does this with a speed and accuracy far greater than the hand or needle-holder.

NEW FORMS AND NEW APPLICATIONS OF METAL CLIPS

The clips ("agraffes") used by Michel for the closure of the skin in mastoid and other operations interested me from the first. They seem to mark a new departure in methods of wound closure, and to open possibilities in several new directions.

When they were offered to the profession, I began to use them somewhat experimentally and with misgivings. Unlike most new appliances (especially mechanical devices) they proved a much more valuable device than even the inventor had claimed. From using them in a limited class of incisions, I learned to put them on almost every operative incision, either alone or in combination with some deeper stitches. I have, therefore, used many thousand of them in lieu of needle and thread closure for the skin. Experience with this method of approximation has resulted in an increasing appreciation of their value on the part of my patients, my assistants and myself.

It is true that my earliest experience was only with mastoid operations, but I learned almost accidentally that they were so neat, quick and painless in practical use, that they almost superseded other methods of skin closure in my work. I find that a number of American and European operators have made the same discovery, no doubt independently. While in some clinics they are not seen at all, a number of well-known clinics (as that of von Eiselsberg) employ them almost as a routine.

The advantages noted for the clips in our clinic have been:

1. Speed of application.
2. Asepsis.
3. Rapid healing.
4. Absence of pain.
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7. No perforation of skin.

The only disadvantages I can imagine are:

1. Lack of strength.
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1. *Speed.* — Observations taken by my assistants showed from five to twenty minutes by various operators in closing ordinary operative incisions. In some instances this was as much as one-third or one-half of the time of operation. Several operators had methods of great nicety in skin-closure, but probably were not aware of the added time taken. The average time of closing (the skin only) by Michel's clips was fifty seconds for short incisions, such as hernia and appendix wounds.

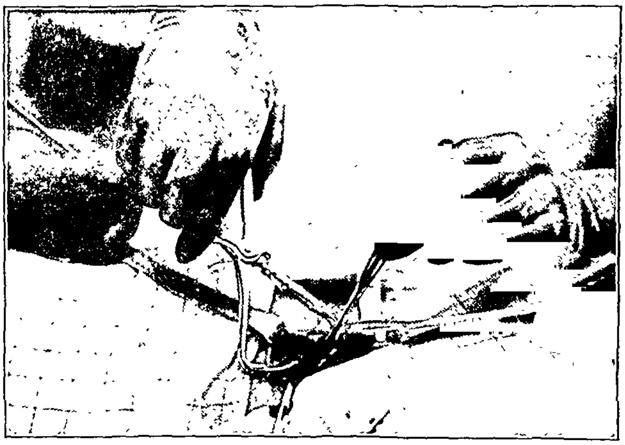
Fig. 3.—Closing abdominal wound (peritoneal layer).

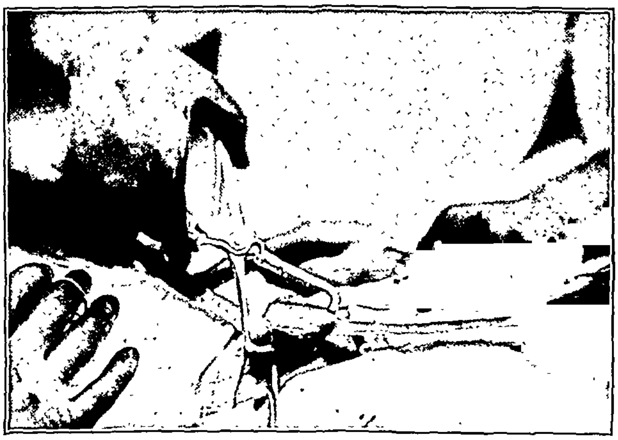
Fig. 4.—Closing abdominal wound (internal oblique layer).

2. *Asepsis.*—The occasional stitch abscesses due to buried catgut, to silkworm, silk, linen or horsehair, point to the fact that all methods which penetrate the ducts and follicles of the skin are subject to infection. This risk, it is true, is slight and is much minimized by our best modern technic, but is not wholly absent, because the deep layers of the skin are now known to be beyond the reach of our sterilizing agents, even of iodin. It is probable that our so-called aseptic wounds are examples rather of relatively light infections overcome by the tissues.

NEW MECHANICAL DEVICES FOR CLOSING WOUNDS *

E. WYLLYS ANDREWS, M.D.
CHICAGO

Comparing the work in various clinics, it is found that some men suture wounds rapidly. Most men require a large percentage of the total time for final closure, and nearly all take longer for this step than they themselves realize or would believe unless they have been timed by the watch.

In a series of observations made for me on my own work and that of other surgeons, the time was found to be so unevenly divided that the internal operative work often was briefer than the elaborate wound closure. Thus the neat and rapid interior work was robbed of its chief value to the patient by prolonging the total operation and anesthesia.

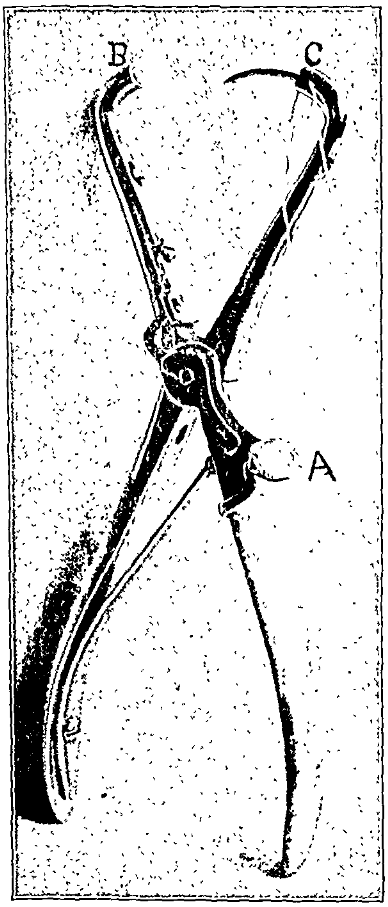

Fig. 1.—First position. Ready to insert stitch. On closing handle needle passes flaps and is seized automatically by opposite blade carrying thread through tissue. On pressing catch A needle is released at B and returns to C, ready for next stitch.

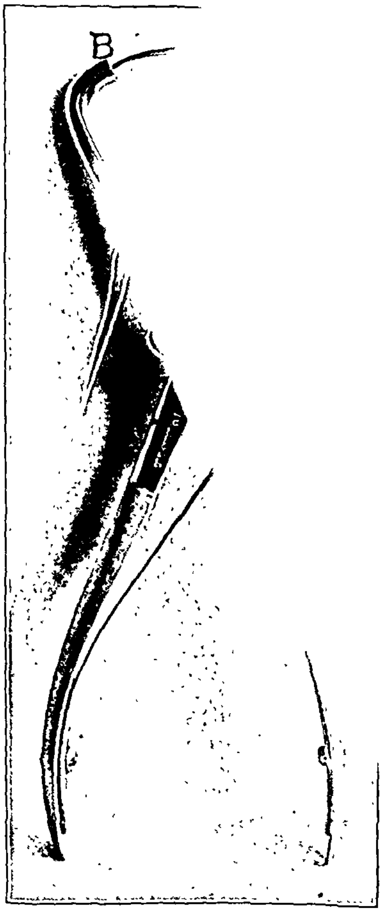

Fig. 2.—Second position. Needle seized automatically by its point at B and pulled through tissue by closing and opening handle. On pressing thumb catch A needle returns to first position, C.

Methods for hastening wound closure may be good or bad in proportion to their safety and nicety of adjustment, but they must not involve any sacrifice of the improved modern principles of anatomical restoration of layers whether in the extremities or the trunk.

On the other hand, if with equal security and asepsis wounds may be brought together in a briefer time or with more smoothness and less
safety will be added tending

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opening and closing their blades, we sh
some of the speed and accuracy of machine
the nicety and safety of hand-sewing.

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* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

After some years of experimenting and disappointment, I have turned to forceps and needle as a *sine qua non* for surgical work, and have constructed several forms of forceps which will actually sew the skin and deep layers more smoothly and rapidly than by hand. Of course they are equally adapted for placing deep ligatures, single or multiple.

The object of these instruments is to gain speed, and, incidentally, regularity of spacing and of tension in the approximated edges. We must admit that this is as likely to be a drawback as an advantage. No machine can have the delicacy and tactile sense of the human fingers; but how much time can we afford to sacrifice for careful suturing by the fingers? Certainly in fine closure like the Lembert stitch in the hollow viscera it is invaluable. In external work, in which the fingers are little used, but mostly needle forceps, a machine sewed wound may well be neater and more delicately adjusted than one sewn by hand in equal time.

Classes of stitches better placed by machine than by the fingers or needle forceps are:

1. "Deep "suture ligatures," single or multiple, around vascular pedicles, as the mesentery meso-appendix, broad ligament, hernial sac, etc. In the depths of a wound or cavity with the sewing forceps one does not have to see the needle point. The forceps automatically and infallibly grasps it and draws it through. It is a particularly rapid method of cross-suturing a wide pedicle of any sort.
2. Straight lines of suture, in which accuracy of spacing, rather than accuracy of fitting, is desirable. Such wounds are abdominal incisions, both muscle-splitting and in the middle line. These are rarely closed now by single rows of deep stitches, but almost universally by anatomical restoration of the concentric layers from within outward. The suturing machine does this with a speed and accuracy far greater than the hand or needle-holder.

NEW FORMS AND NEW APPLICATIONS OF METAL CLIPS

The clips ("agraffes") used by Michel for the closure of the skin in mastoid and other operations interested me from the first. They seem to mark a new departure in methods of wound closure, and to open possibilities in several new directions.

When they were offered to the profession, I began to use them somewhat experimentally and with misgivings. Unlike most new appliances (especially mechanical devices) they proved a much more valuable device than even the inventor had claimed. From using them in a limited class of incisions, I learned to put them on almost every operative incision, either alone or in combination with some deeper stitches. I have, therefore, used many thousand of them in lieu of needle and thread closure for the skin. Experience with this method of approximation has resulted in an increasing appreciation of their value on the part of my patients, my assistants and myself.

It is true that my earliest experience was only with mastoid operations, but I learned almost accidentally that they were so neat, quick and painless in practical use, that they almost superseded other methods of skin closure in my work. I find that a number of American and European operators have made the same discovery, no doubt independently. While in some clinics they are not seen at all, a number of well-known clinics (as that of von Eiselsberg) employ them almost as a routine.

The advantages noted for the clips in our clinic have been:

1. Speed of application.
2. Asepsis.
3. Rapid healing.
4. Absence of pain.
5. Absence of scars.
6. Ridge-shaped or folded-up suture line.
7. No perforation of skin.

The only disadvantages I can imagine are:

1. Lack of strength.
2. Want of flexibility, causing pressure, irritation or ulceration.

These advantages and disadvantages may be considered in detail:

1. *Speed.* — Observations taken by my assistants showed from five to twenty minutes by various operators in closing ordinary operative incisions. In some instances this was as much as one-third or one-half of the time of operation. Several operators had methods of great nicety in skin-closure, but probably were not aware of the added time taken. The average time of closing (the skin only) by Michel's clips was fifty seconds for short incisions, such as hernia and appendix wounds.

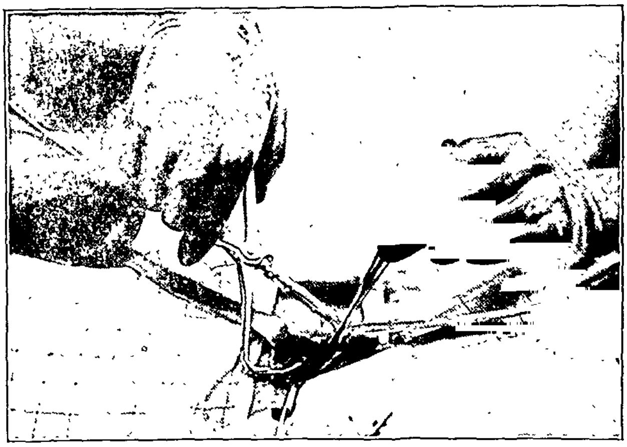
Fig. 3.—Closing abdominal wound (peritoneal layer).

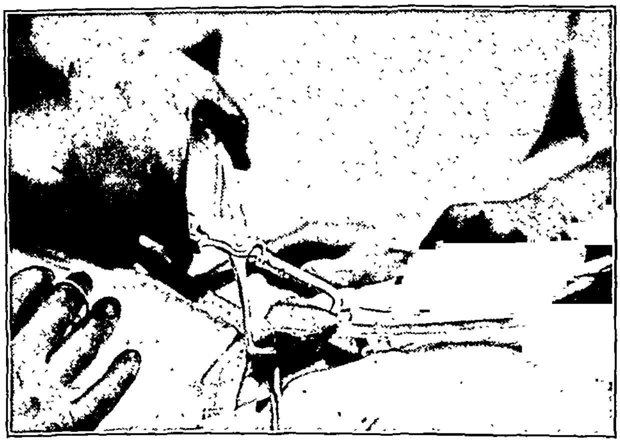
Fig. 4.—Closing abdominal wound (internal oblique layer).

2. *Asepsis.*—The occasional stitch abscesses due to buried catgut, to silkworm, silk, linen or horsehair, point to the fact that all methods which penetrate the ducts and follicles of the skin are subject to infection. This risk, it is true, is slight and is much minimized by our best modern technic, but is not wholly absent, because the deep layers of the skin are now known to be beyond the reach of our sterilizing agents, even of iodin. It is probable that our so-called aseptic wounds are examples rather of relatively light infections overcome by the tissues.

The clips, on the other hand, do not pass through the skin. Even should sepsis exist under their points, it finds no line of access as in the case of tissue traversed by a needle and thread. No method can be conceived more certain to vaccinate the deep layers with matter from the skin follicles than the puncture of a needle and the subsequent wiping of the tissues from without inward by the tight-fitting thread. It may be that the use of a double-needled thread, both needles being passed from without inward, would lessen this risk. As we always insert the figure-of-eight skin-fascia suture with two needles, this may explain a certain immunity we have had with it.

3. *Rapid Healing.*—The clips are removed early. Alternate ones in three days and the remainder in five days.

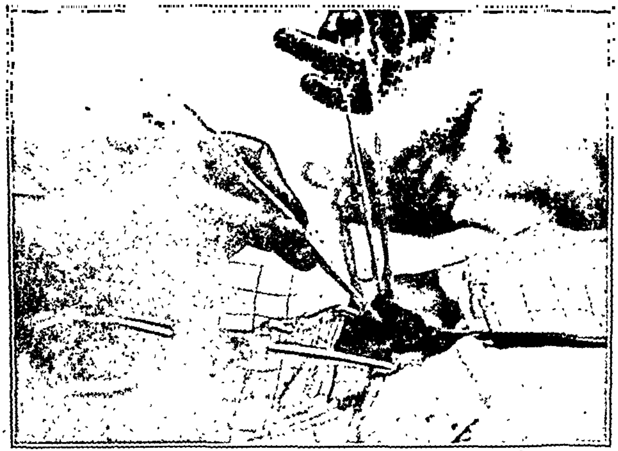

Fig. 5.—Closing abdominal wound (external oblique layer).

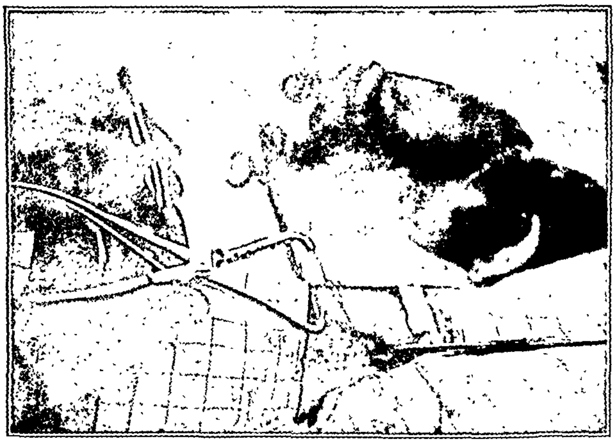

Fig. 6.—Closing abdominal wound (external oblique layer—unished suture).

4. *Absence of Pain.*—This is very noticeable. In goiter cases, hernia, laparotomies, etc., patients uniformly complain less than with sutures. The splint-like action and the absence of punctured wounds explains this. Without exception assistants and dressers report easy convalescence in these wounds.

5. *Absence of Scars.*—Early removal leaves no permanent marks. The clips, if left on too long, will, however, leave punctate scars like deep stitches.

6. *Ridge-Shaped or Fold-up Suture Line.*—This is a mechanical property of the clips and insures deep approximation, almost like that of two rows of stitches.

We turn now to the possible disadvantages above noticed.

1. *Lack of Strength.*—This may be a real limitation, but a desirable one, rather than an obstacle to the use of clips. They certainly lack strength in wounds under great tension, as in certain extensive breast amputations, in which approximation is difficult. They hold the skin and fat only, not the deeper fascia, but even with these obvious limitations they may well be combined with deep or buried retention sutures of any form. I sometimes have made the statement that the inability to hold skin under great tension was a virtue if it led us to avoid dangerous traction by suitable devices.

2. *Want of Flexibility.*—Metal clips are not flexible after once being applied, and hold the pinched-up skin rigidly. This will cause ulceration about as soon as a deep tense silk silkworm or wire stitch will; that is, in from eight to twenty days, but when clips are removed in five days, ulceration is never seen. No case of sloughing from pressure ever occurred in my use of them. I have always observed that a semi-rigid suture will cut less than a soft one. The splint action of a wire or silkworm gut is quite valuable, and this is one of the merits of metal clips.

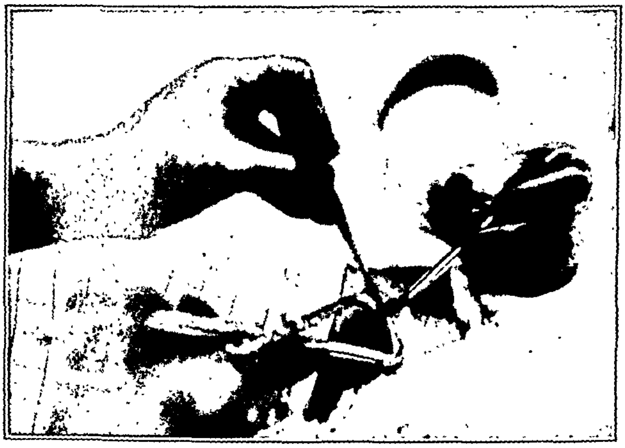

Fig. 7.—Closing abdominal wound (skin suture). One thread and needle used for the four stitch lines without knotting between.

In using Michel's clips I soon found great variations in the density and thickness of the skin of different parts of the body, which I had never noticed in using stitches. The skin of the epigastric region is at least twice as dense and thick as that of the appendix and hernia region. The imported clips are of just the right length to grasp the skin of the groin, neck, or that of the limbs, but not strong enough or long enough to hold well that of the epigastrium or hairy scalp; therefore, I have had made longer ones for these locations and smaller ones which I sometimes use for fine skin edges. I also found that in some cases quicker and more accurate application could be made by holding the larger clamps between the thumb and forefinger instead of with the Michel forceps.

Figures 8 to 11 show forms of thumb-clips which give quite as smooth and nice a cuticular junction as the Michel clip and are considerably stronger. One of the crescentic clips does the work of two of the smaller kind, so that a couple of them will close an ordinary 4 to 6 cm. incision; i. e., one requiring four small clips. It will be noted that the skin junction is held at twice as many points as the deep part, so that the line is ridge-shaped and held as if by a few deep and superficial stay stitches.

CLIPS USED IN HOLLOW VISCERA

The new feature which I wish to bring before you is the use of clips in intestinal work. In all locations permitting them to drop off into the alimentary canal they are safe and speedy of application. This precludes their use except in the inner suture of an anastomosis. They can be used on the mucous side, but not for the peritoneal, nor in place of the Lembert suture. These limitations do not prevent them from being of considerable utility in various ways about the intestine.

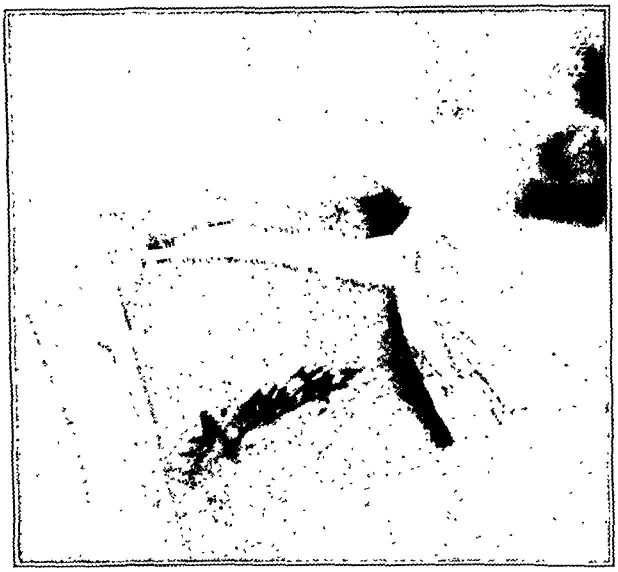

Fig. 8.—Author's wide clips, after type of Michel clip or "agraffes."

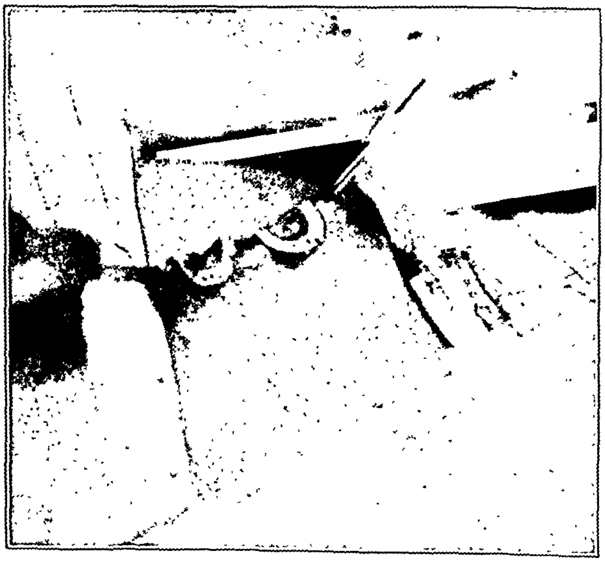

Fig. 9.—Author's horseshoe or double clips. Can be applied by thumb and forefinger or by forceps.

When an open gastric or intestinal approximation is made, the inner or deep suture is usually of strong silk or linen.

In doing such work I often put a clip on each end to mark out the inner or deep stitch-line. This seems to render the rest of the suture work easy and quick.

In the illustrations such use of the clips may be observed.

CLIPS USED FOR HEMOSTASIS

Finally, I must add that as a substitute for artery forceps and ligatures, I find the small clips of great value. Their action is clamp-like and they check oozing promptly, either interstitial or from large branches. I have found this of great value in the abdomen, throat and brain, as it does away with numerous dangling forceps. The objection to leaving small staple-like foreign bodies in wounds and cavities is slight in comparison with their advantages. No objection at all exists in cavities like the intestine, rectum, or vagina, where, as in hysterectomy, they are far easier of application than forceps or ligatures.

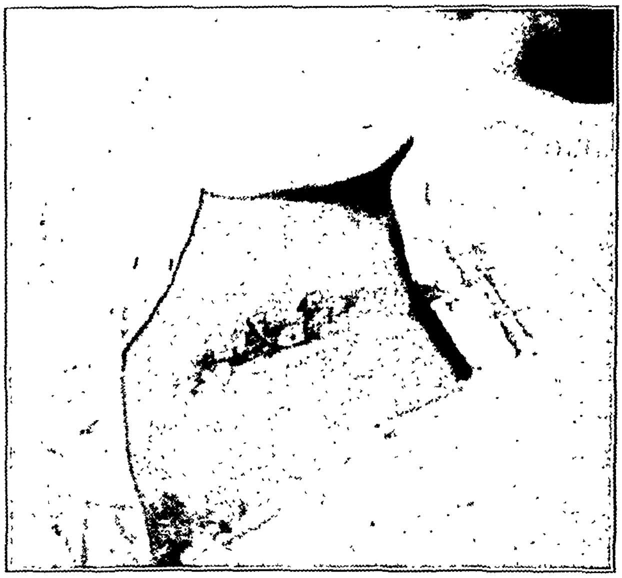

Fig. 10—Author's horseshoe clip. One drawback to this form is a tendency to slip or ride too high from edge of wound.

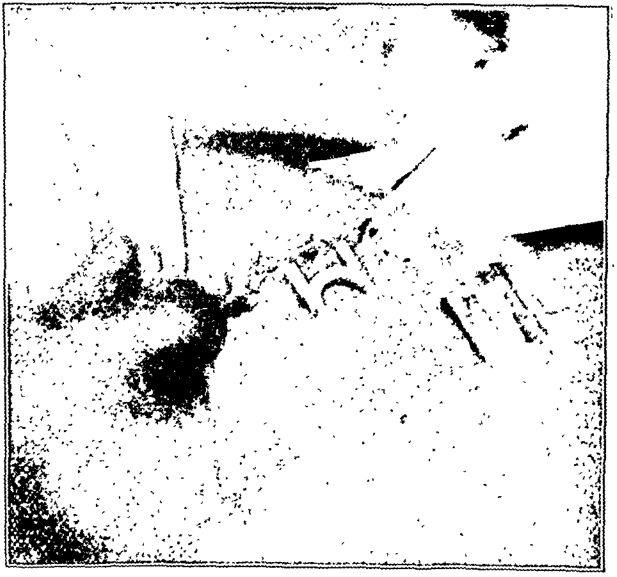

Fig. 11.—Author's double square clip. Has fine teeth, 1 mm. long, at tips to bite into cuticle.

The metal used for outside work is German silver. Copper, brass and block-tin do not, in my work, give the right degree of softness combined with firmness after bending. They must have no elastic tendency to spring open after clamping into place.

To secure absorption of the little metal staples after placing deep in wounds, I tried aluminum, zinc and magnesium. The latter is ideal in being quickly absorbed, but is so brittle that it breaks instead of "clinching" or crimping together when clips and staples are made of it. I am now using an alloy of these metals, which is tougher and promises well for rapid absorption.

I shall report on this material when I have had a longer series of operations under its use. With a good absorbable metal clip the deeper layers of a wound can be closed and buried, giving all the speed of external clip closure and supplanting the thread and needle at all stages.

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GONORRHEAL OSTEOPERIOSTITIS OF THE LONG BONES *

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Although gonorrheal osteoperiostitis of the epiphyses, and especially of the small bones of the hands and feet, is not very uncommon, this is far from being true of osteoperiostitis of the diaphyses of the long bones; in fact, no mention is made of this condition in the usual text-books and systems of surgery, and its existence has even been disputed. In the following case, which I shall describe in some detail, the femoral diaphysis was very extensively involved.

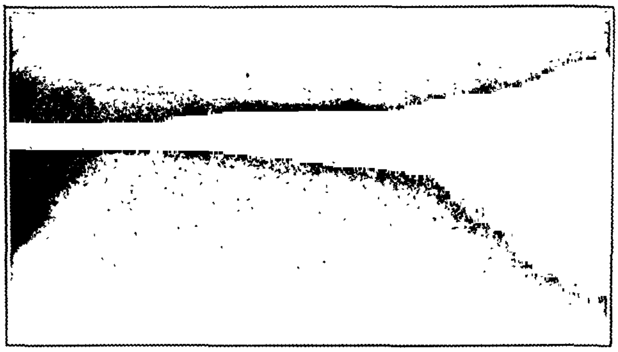

Fig. 1.—Definite deposits of new bone about femur, seventeen days after operation.

Patient.—J. M., aged 24, was admitted to the Johns Hopkins Hospital, January 2, 1907, complaining of an abscess on the left thigh.

History.—The family history and previous personal history were unimportant. There was no history of gonorrhea before present attack. The present illness began two weeks ago with swelling in the left thigh, which became painful, hot and hard. There was no history of injury. On account of inability to use the leg, the patient remained in bed for a week previous to admission. His appetite was lost, bowels became constipated and he had night sweats. He did not know that he had any fever. He dated the illness from a gonorrheal infection of four weeks' duration, the discharge continuing until one week before examination. A bubo developed on the left side but disappeared without discharging.

Examination.—Patient was a healthy-looking boy, in good general condition. Temperature was 103.6 F., pulse good volume and tension, 90 to the minute. Leukocytes 12,400. Examination of heart, lungs and abdomen negative. The patient had an acute urethritis up to one week before examination when the discharge ceased; he had a purulent balanitis, gonococci being found in pus about the glans penis. The glands of the groin were slightly enlarged, not tender. Prostate rather tender. Over the anterior and outer aspects of the middle third of the left femur there was a tender indurated area 10 by 14 cm. in diameter, apparently an abscess beneath the quadriceps muscles. The surface temperature was elevated but the skin was not reddened. The hip and knee seemed to be in nowise involved.

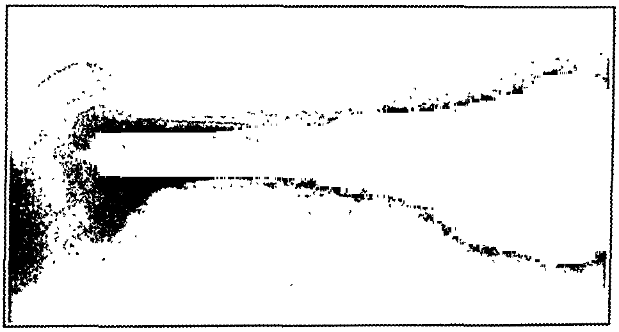

Fig. 2.—Thick envelope of new bone about femur, thirty-seven days after operation.

Operation.—Jan. 2, 1907, an incision 14 cm. in length was made over the swelling on the anterior and outer aspect of the thigh. The muscles were separated and the swelling found to be due to a small collection of fluid beneath the periosteum, the fluid being turbid but not actually purulent. A pure culture of the gonococcus was grown from this fluid by Dr. Rufus Cole, now of the Rockefeller Hospital, New York. The periosteum was very thick, edematous and lined by a velvety granulation tissue. It had been stripped away from the bone over a considerable area by the collection of fluid beneath it. The exposed bone was slightly roughened by deposits of new bone. The marrow cavity was not opened. The wound was irrigated with mercury bichlorid and packed with iodoform gauze.

Pathologic Examination.—Sections of the thickened periosteum were examined by Dr. W. G. MacCallum, who made the following note: "The section shows some new-formed bone embedded in a great deal of very vascular granulation tissue. Outside of this there is muscle, the individual fibers of which are separated by the same vascular granulation tissue. The interstices of this tissue contain much fibrin, and there are very abundant wandering cells which are as a rule not polymorphonuclear leukocytes, but mononuclear cells of various sorts, many of them with long branching protoplasmic bodies. The new bone is in the form of anastomosing laminæ, only partly calcified and thickly surrounded by osteoblasts. About these masses, and in the meshes, there is a vascular granulation tissue filled with cells indistinguishable from the osteoblasts and in places continuous with them, otherwise the tissue resembles that seen in any other granulation formation.

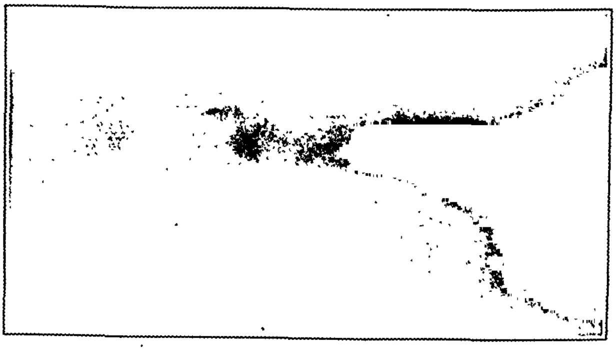

Fig. 3.—Great thickening of femur, eight months after operation.

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* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

No definite organisms can be seen in the specimen stained with methylene blue."

Course.—Jan. 19, 1907: General condition of patient is not very satisfactory. He looks rather pale. Temperature ranges between normal and 102. Pulse is of small volume, rather low tension, ranging around 100 to the minute. The heart sounds are clear. The wound was dressed to-day. There was a small amount of purulent discharge. The whole left thigh is considerably swollen and there seems to be a distinct thickening of the femur, beginning a short distance below the greater trochanter and extending almost to the condyles. The whole extent seems somewhat tender but the most tender points are on the outer side of leg, 6 to 8 cm. below the upper border of the trochanter and on the inner side, a short distance above the knee. Movements of hip and knee are free and painless. A skiagraph (Fig. 1) was taken and this shows definite deposits of new bone about the femur.

Jan. 27, 1907: Condition of patient is much improved. He eats well and sleeps much better than formerly. For the last few days he has complained of no pain. Temperature seems to be subsiding gradually. The highest point in last three preceding days was 100.6 at 8 p. m. yesterday. The wound was dressed to-day. There was a small amount of purulent discharge. The wound cavity still extends 10 to 12 cm. along the bone, which is exposed throughout this extent. The thigh is less swollen but the bone seems thicker than ever. Tenderness has all disappeared. Movements of hip and knee are perfectly free and painless.

Feb. 10, 1907: Patient is now feeling very well and wants to walk. Temperature is about normal. Wound is clean, granulating well. There is still a considerable area of exposed bone in the bottom of the wound. Movements of hip and knee are perfect and painless. There is a marked thickening of the femur. Skiagraph taken a few days ago (Fig. 2) shows a thick envelope of new bone about the shaft of the femur, extending from a short distance below the trochanter, almost to the condyles. No pain or tenderness is anywhere present. On palpation the femur seems to be about 9 cm. in diameter. Circumference of left thigh at its middle is 37 cm., right thigh 32 cm.

Feb. 20, 1907: Patient has been walking for several days. The leg has given him no pain. Temperature has not been elevated. The left femur is still greatly thickened. The wound is entirely healed. The patient is discharged from hospital.

He was seen again on Aug. 31, 1907, when his general condition was found to be good. Examination of the leg, however, revealed a great thickening of the femur. There was still a small sinus near the middle of the old scar. *X*-ray was taken (Fig. 3) and showed an enormous thickening of the entire femur.

After this the patient was lost sight of and has not been seen since. It would be interesting to know whether there was any infection of the marrow cavity, and if so, whether it was sufficient to so impair the blood-supply of the cortex as to cause sequestration. I am inclined to believe that there has been no sequestration of the femur in this case.

According to Hirtz,[1] Fournier, in his remarkable study appearing in 1869, first established definitely the clinical existence of periosteal manifestations of gonorrhea. He distinguished periostitis and periostosis, the former being simple inflammatory deposits in the periosteum, the latter being tumors resulting from infiltrations between the bone and periosteum. He insisted on the much greater frequency of periostitis, which produces slight circumscribed, ephemeral swellings, most frequently found on the tibia just above the insertion of the sartorius, on the lower extremity of the humerus, on the upper end of the fibula, on the greater trochanter of the femur, on the posterior surface of the os magnum and on the extremities of the metacarpal and metatarsal bones. The only symptoms are a more or less acute pain in a circumscribed area with perhaps a little edema and redness of the overlying skin. Liable to recurrence at each reinfection, they can at times proceed to the chronic stage and produce a periostosis, which is flat, fixed, hard and adherent to the bone, usually small in extent, but capable of a considerable development.

Fournier and most other authors who, following him, have studied the subject, have emphasized the purely periosteal origin of the lesion, its epiphyseal location and its frequent association with the deforming variety of gonorrheal arthritis.

Achard and Hirtz have, however, in recent years called attention to the fact that the deforming variety is not the only form of gonorrheal rheumatism which is accompanied by lesions involving the bones; moreover, they insist that the diaphysis as well as the epiphysis may be involved and that the bone itself as well as the periosteum plays a part in the process. Achard observed a young woman, who, following a non-deforming gonorrheal arthritis of the left knee, had a marked general thickening of the left femur, which he considered to be undoubtedly due to a hyperostosis. The case of Hirtz was that of a young girl, aged 19 years, who, in the third month of gonorrheal rheumatism, presented a marked swelling of the lower two-thirds of the right femur. The swelling was very indolent, developed insidiously and was discovered accidentally. The bone seemed double its normal thickness and the consistency of the tumor was such as to suggest an hyperostosis, even though the skiagraph showed the part played by the bone itself to be comparatively slight. As to the gonorrheal nature of the condition, he thought there was no doubt, coming on, as it did, in the course of a bad gonorrheal rheumatism, while the arthritis of the right knee still persisted and a vaginal discharge was present; moreover, there was no evidence of syphilis, hereditary or acquired.

While admitting that the inflammation may extend from a gonorrheal joint along the adjoining long bones to a greater or less extent, Durand and Nicolas[2] are doubtful regarding the actual involvement of the periosteum and bone, and are inclined to think that the thickening, which we make out in these cases, is due to an inflammatory infiltration of the tissues outside of the periosteum.

They assert that, inasmuch as they can find no account of an operation or autopsy performed on the bone, the exact nature of such cases is not known, but, granted that a periostitis or periostosis does exist, they think the process cannot be compared to that of an osteomyelitis, since there is no suppuration or sequestration.

According to them, there are no osteoperiostitic changes, but an inflammatory induration which is in the neighborhood of the bone without really altering its elements and in no case would anything seem to show the existence of an osseous lesion. In the absence of anatomic demonstration it would seem to them that neither the clinical nor radiographic signs can be considered convincing. On clinical examination they find simply a deep swelling or tumor, usually limited to the vicinity of the joint, but able to extend more or less along the diaphysis; there exists, however, no sign which permits them to say definitely that the bone or periosteum is involved; moreover, they state that no *x*-ray has shown indisputably the presence of any alteration in the bony substance.

In support of this view, they report a case of acute gonorrhea with suppurative gonorrheal arthritis of the right knee, in which there was great edema of the right leg and thigh, most marked near the knee. Later on, examination showed a hard thickening above and below the knee, which the authors considered to be due to an infiltration of the soft parts and not to a periosteal thickening, as the skiagraph showed no bony changes, and the induration and thickening gradually disappeared.

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[1] Hirtz, E.: Ostéopériostose hypertrophiante blennorrhagique de la diaphyse fémorale, Presse méd., 1900, ii, 407.

[2] Durand and Nicolas: Sur l'ostéopériostose hypertrophiante blennorrhagique des grandes os des membres, Lyon méd., 1907, cix, p. 693.

My case and others in the literature, however, show that the gonococcus can produce marked changes in the bone and periosteum. I cannot speak authoritatively regarding the exact nature of the thickening and induration about the long bones in the neighborhood of gonorrheal joints, but I am inclined to think that in the majority of these cases, the bone and periosteum are not involved, while in some there is probably a definite osteoperiostitis.

We are all familiar with the cases of exostosis of the os calcis of gonorrheal origin, described by Jacquet,[3] on the posterior surface of the bone beneath the tendo Achillis, and by Baer,[4] Durthe and others, on the plantar surface of the bone at the origin of the flexor brevis digitorum. Four of the five cases operated on by Baer were examined bacteriologically and in three of these gonococci were demonstrated. It seems to us that these are clearly cases of gonorrheal osteoperiostitis.

Cases of supposed gonorrheal osteoperiostitis of other bones have been observed by Claisse and Ozenne.

Claisse[5] reports the case of a girl, aged 19, with gonorrhea, in whom a persistent pain, increased by sudden movement or pressure, appeared about the costal cartilages, soon followed by the development of a series of nodosities in this region, suggesting a gonorrheal rosary. The gonorrheal origin of the lesions was not definitely demonstrated by bacteriological examination.

Ozenne[6] describes the case of a man, aged 25, who had a definite gonorrhea, which was apparently cured. Shortly afterward, apparently without traumatism, a pain appeared in the lower portion of the right leg and a swelling was found on the anterior and internal aspect of the leg, three finger-breadths above the ankle. The skin over the swelling was slightly reddened and the surface temperature elevated. Over the lower end of the tibia the swelling was well defined, hard, flat and immovable. Although gonococci were not demonstrated by incision, Ozenne considered this to be a case of gonorrheal periostitis with tenosynovitis of the extensor tendons of the foot. The swelling disappeared gradually without treatment other than a compression bandage.

Gonorrheal osteomyelitis is a very rare condition, though theoretically it is hard to understand why it is not as frequent a complication of gonorrhea as arthritis. I have been able to find only two definite cases in the literature.

Ullman,[7] in 1900, reported the case of a man, 27 years old, who in the third week of a second attack of gonorrhea had a chill which was soon followed by pain in both elbows. The lower end of the left humerus became greatly swollen and tender, and the skin over it reddened. A diagnosis of acute osteomyelitis was made and at the *operation a considerable amount of pus was found in the* marrow cavity. Gonococci, unmixed with other organisms, were demonstrated in the pus. Ullman thinks that if we took a careful history, as regards gonorrhea, in cases of osteomyelitis and tried to grow the gonococcus on the proper medium, we would find more of such cases to be gonorrheal in origin.

Heymann[8] has reported the case of a man, aged 40, who had had several attacks of gonorrhea, the last attack being about a year before admission. When seen by Heymann in September, 1908, he had had a cold for fourteen days, and during this time micturition had been painful. On examination he looked sick and feverish, and there was a slight urethral discharge, though gonococci were not surely demonstrated. The prostate was swollen and tender. On pressure the swelling of the prostate largely subsided, but the patient soon had chills and fever, which indicated, according to Heymann, that the emptying of the prostatic abscess had forced some organisms into the general circulation. After ten days the fever disappeared, but four days later the patient complained of pain at the lower end of the left tibia, and a tender, swollen area was found in this region. Conservative treatment failing to give relief, operation was performed. The periosteum was found to be stripped away from the bone and there was a small collection of pus beneath it. Pus was found in the marrow cavity and gonococci demonstrated in it.

Cupler's[9] patient, a young man with acute gonorrheal urethritis, developed an arthritis of the left shoulder. The joint was aspirated and 20 c.c. of fluid, containing gonococci, was removed. Failing to relieve the pain, the joint was opened the following day, a few cubic centimeters of fluid being found in the joint. There was a cavity in the head of the bone containing necrotic material, and smears made from the contents of the cavity showed the presence of gonococci. In this case, however, it cannot be said whether the bone or joint infection was primary, and I am inclined to believe that the bone involvement was secondary to that of the joint, as erosions of the bone are not infrequent in gonorrheal arthritis.

As I said at the outset, the literature concerning gonorrheal bone lesions is very meager, and, inasmuch as my case is the only one I have been able to find in which the *x*-ray has shown a marked thickening of the diaphysis, as the result of a gonorrheal infection, I have felt justified in putting it on record.

The Spirit of Research.—The investigator, says Professor Cannon in *Science*, is first of all one who thinks as much of what we are ignorant of, as he does of what has already been made clear. His chief interest is in the territory which has not yet been traversed. Indeed, he is to be classed with explorers and pioneers. For such men the complacent contemplation of things accomplished is intolerable—they chafe under the routine of established ways and find the satisfactions of life in adventures beyond the frontiers. Harvey, among the first of modern discoverers, expressed the spirit of research when he wrote: "It were disgraceful, with this most spacious and admirable realm of Nature before us, and where the reward ever exceeds the promise, did we take the report of others on trust, and go on coining crude problems out of these, and on them hanging knotty and captious and petty disputations. Nature is herself to be addressed; the paths she shows us are to be boldly trodden; for thus and whilst we consult our proper senses, from inferior advancing to superior levels, shall we penetrate at length into the heart of her mystery.

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[3] Jacquet: Ann. de dermat. et syph., 1892, p. 681.

[4] Baer: Gonorrheal Exostosis of the Os Calcis, Surg., Gynec. and Obst., 1906, ii, 168.

[5] Claisse: Ostéopathies blenorrhagique, Bull. Soc. méd. d. hôp. de Paris, 1897, xiv, 1261.

[6] Ozenne: Note sur un cas de périostite de la face interne du tibia et de synovite tendineuse des extenseurs du pied d'origine blenorrhagique, Bull. Soc. franç de dermat. et syph., Paris, 1895, vii, 82.

[7] Ullman: Osteomyelitis gonorrhoica, Wien. med. Presse, 1900, xli, 2225.

[8] Heymann: Osteomyelitis gonorrhoica, Ztschr. f. Urol., 1909, iii, 720.

[9] Cupler: Note on Gonorrheal Osteomyelitis, Ann. Surg., 1907, xlv, 121.

AIMS IN MEDICINE *

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William Paul Crillon Barton was graduated from Princeton College in the class of 1805. It was the custom at that time for each member of the class to assume the name of some celebrated personage; young Barton adopted that of Count Paul Crillon, and the initials " P. C." were retained by him through life.

He took his degree in medicine at the University of Pennsylvania, where he studied under the direction of his uncle, Dr. Benjamin Smith Barton, graduating in the class of 1808. His thesis on "Nitrous Oxid" was considered a classic for many years.

After an internship in the Pennsylvania Hospital, he was appointed a surgeon in the Navy in 1809. In July, 1811, just 100 years ago, the Secretary of the Navy, Mr. Paul Hamilton, directed Surgeon Barton to outline a plan of organization for the Medical Department, to be presented to Congress for approval. It may be justly said that Barton was the father of the Medical Department of the Navy.

Professor Holland, in his admirable history of the Jefferson Medical College of Philadelphia from 1825 to 1908, states that, in the summer of 1826 Dr. William P. C. Barton was appointed to a new chair of materia medica, and we find later on, when the Bureau of Medicine and Surgery was created in the Navy Department, the same William P. C. Barton occupying the office of Chief of Bureau, in reality the first Surgeon-General of the Navy.

Surgeon Barton published an account of the outlining of his plan for the organization of the Medical Department of the Navy, and modestly said that his schemes were thrown together with such order and system as was permitted by the limited time he had to devote to the subject under the pressure of professional duties on shipboard. He stated that the report containing his plans was certainly less perfectly digested and more carelessly treated than the importance of the subject demanded, because it was written during a tempestuous voyage from Norfolk to New York in the sloop-of-war *Hornet*, with the ever-to-be lamented Captain Lawrence, under the disadvantages, too, of seasickness and acute mental affliction from the recent loss of a friend.

In a foot-note he speaks of his friend Lawrence in the following terms:

> At the mention of the name of a man, dear to every American, and whose patriotism and valor are deeply registered in our memories, I hope I shall be excused in giving way to an impulse of feeling by declaring that, in sickness and in sorrow, I found in this magnanimous hero a comforter who administered the sweetest solace with even feminine tenderness; such were the superior virtues of a man who was gigantic and valorous in war.

Surgeon Barton was a prolific writer, devoting much attention to botany in connection with materia medica.

The dedication of his treatise on the internal administration of government and naval hospitals is as follows:

> To the Flag Officers, Captains and Surgeons in the Navy of the United States:
>
> A NAVY—rendered glorious by the brilliancy of its achievements and which has added luster to the nation, given dignity and importance to its character abroad:
>
> A NAVY—to the seamen of which, by their prowess and their victories, the skilful, the valorous, and the hitherto unconquered naval sons of Britain are forced to yield the palm of superiority:
>
> A NAVY—thus eminently distinguished even in infancy, and which has conquered its way to public favor and estimation: This attempt to promote its interests is most respectfully dedicated by the author.

In his concluding remarks in this treatise, Dr. Barton has to say the following:

> In the foregoing pages I have been necessarily led into the exposition of many and palpable abuses in the Medical Department of the Navy. There are not a few persons with whose interests such an exposition will very much interfere; from them, therefore, I expect no thanks; on the contrary, I look for caviling and censure at their hands. I am, however, prepared to meet it.
>
> My independence in expressing my sentiments on points of duty while in the Navy procured for me not a few enemies; but while I regret this consequence of a line of conduct that thrice the inconvenience could not have made me forego, I have the consoling assurance of having acquitted myself in the way of duty to the entire satisfaction of officers with whom I have served, whose regard and good opinion were of moment in my estimation.
>
> Both my feelings and my fortune have suffered by the determination I made when I first entered the service, from the execution of which I never in a single instance swerved, to pursue that line of conduct that I deemed consistent with the faithful performance of my duty and my trust, however such conduct might clash with the private or public interests of others, or differ from the customary proceedings of persons similarly situated with myself.

Such were the sentiments of the man who had most to do with formulating the plan of organization of the Medical Department of the Navy and whose name appears in that brilliant and courageous group of original professors who have made possible the great institution of learning from which you graduate to-day.

Your present faculty is built of precisely the same timber, and in seeking the personification of the highest aims and ideals in medicine I heartily commend their characteristics to your most careful study. I am proud to bring to your notice the close intertwining of the roots of origin that have since grown into the two great medical organizations—Jefferson Medical College and the Medical Department of the Navy.

Since 1842, when Dr. Barton became Surgeon-General, your alma mater has given us no less than 100 medical officers, and among them are names that have helped to make naval history in the past and are adding further laurels to medicine in the Naval Service to-day. I am proud to tell you that the last commission signed by the President is now in possession of a graduate of Jefferson and a former intern of your hospital.

Is it at all surprising that the mere mention of the name of your great institution of learning should awaken sentiments of affection, esteem and respect in the Navy? I can assure you that the great honor and privilege your board of trustees has conferred on the Medical Corps in inviting its ranking officer to address you on this occasion, has in nowise lessened this warm spirit of fraternalism.

As you go forth to-day after four years of association in lecture rooms, laboratories, hospitals and elsewhere, each inspired with a resolution to solve the problems that lie before him in accordance with the high standards in which you have been so thoroughly drilled, the conviction will be brought home to you that these problems have taken on a new and very personal form calling for the development of a resourcefulness and an individual effort that had not been exacted before. Your bearing and conduct in meeting these new responsibilities, even at the outset of your careers and in every hour of every day thereafter, will determine largely the measure of success that will be accorded you in the future.

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* Valedictory address delivered before the graduating class of Jefferson Medical College, June 5, 1911.

You have chosen the grandest profession of them all, without exception, one demanding courage of the highest order, sacrifices without end, a profession little appreciated and less materially rewarded for what it has accomplished than any of the others.

It is well for you at this time to endeavor to develop proper aims and adopt high ideals to guide you in your every-day life, so that the impulse to act squarely and properly to yourselves, your patients and your community will be involuntary and unhesitating.

It has been well said that he is best educated who has the largest and most manageable series of orderly and useful habits in the storehouse of his brain and other nerve-centers. These habits include and cover what are ordinarily understood to be facts as well as reasoning and action. That brain is best equipped which, on the greatest number and variety of occasions in life, acts in a fairly automatic manner in the best way for the usefulness and happiness of the individual. Such a personality not only has the highest order of education, but also has the largest development of character in its broadest sense.

In his essay on two kinds of conscience, Norman Bridge has given us much food for thought and a guiding hand in the selection of high aims in medicine in its relations to individuals and its activities in the community.

He defines conscience as that governing principle, that guide of action, which gives a standard of conduct and judgment to every man. Conscience is largely a matter of education; to some degree it is inborn and, therefore, instinctive; applied to things, beliefs and principles, it is substantially all acquired. In order better to understand the many phases of human conduct, Bridge has described two kinds of conscience; one he has called the personal, or individual, conscience, the other the company, class or collective conscience.

The individual standard is perhaps the higher. It is this conscience that impels man to do what he alone believes to be right. It is the conscience of solitude and tranquillity—of man communing with himself.

The collective, or group, conscience is the standard of the community, and is an altogether different standard from the personal one. The two are often in conflict, although often completely in accord. The feelings and emotions of this standard are in general the ever-present emotions of mankind. All must act outwardly, at least, with slight variations, for the benefit of the race. The collective or group conscience is the executive or official conscience.

It is the personal or individual conscience that tends to impel the soldier, when first under fire, to flee. The group conscience, which has been developed by training and discipline, holds him in ranks with his fellow combatants.

The personal, or individual, conscience has had much to do with the great advances, the epoch-making stands taken by individuals. For instance, Ambroise Paré, the great French surgeon, was ridiculed and called an impostor when he advocated the ligature for arresting hemorrhage, to replace such barbarisms as the routine use of boiling oil and the actual cautery. John Hunter was accused of wasting his time in studying with painstaking care the growth of a deer's horn, but it was this study which led to a knowledge of collateral circulation and emboldened him to ligate the main vessel in aneurism. Harvey spent eight long years of investigation and research before he published his views of the circulation of the blood, which led to his being discredited, and it was fully a quarter of a century before this established scientific truth became generally recognized.

The difficulties of Jenner were even greater than those of Harvey, and, judging from certain well-meaning but misguided efforts that are being made strenuously to-day, not all are yet convinced of the efficacy of vaccination against small-pox. The pendulum has swung the other way, and the tendency now is hysterically to grasp the latest thought or idea, claiming vastly more for it than its originator proposed, only to meet with disappointment and discredit where both are unnecessary.

It is the group conscience, on the other hand, which rules the mob. A normal development of the two kinds of conscience to meet the vicissitudes of various situations leads to the most satisfactory results. In caring for an individual ill, the dictates of the personal conscience should be yielded to; when the welfare of a community is at stake, the promptings of the collective conscience should govern. In a military establishment the individual, or personal, conscience and its promptings are subordinated to the dictates of the group conscience, and this is justified by the objects and aims of such an establishment.

Surgeon Barton's activities and reforms were impelled by a pronounced development of the individual conscience and their beneficent effects are felt to this day.

The internal dissensions and difficulties with which Jefferson College was beset in its early days, as recorded by Professor Holland, resulted from too much personal conscience, and a neglect of the collective standard. With the establishment of a normal balance between the two began a progress almost unparalleled for brilliancy.

Let us see how the cultivation of these two kinds of conscience, in their proper proportions and relations, will guide us to a wise selection of our aims in medicine. The proper development of the personal conscience will make impossible commercialism, the dividing of fees, and other growing abominations of the day. The welfare of the patient will be our immediate consideration; his personality will receive the close study it merits, and we shall not be treating disease, as such, with the possible future applause of the medical society, or the allurements of a statistical report, before us. We shall not be wholly engrossed with the laboratory findings or the pathologic report.

Our diagnoses will not be made in the laboratory and in the *x*-ray room. The internist will not be found temporizing and unduly postponing the summoning of the surgeon with the misleading notion that he is practicing conservatism. Often bold, timely operative procedures are of the highest type of conservatism, in that they may not only save life and safeguard organs that would otherwise have become involved, but they may lead to a restoration of function with a minimum of aftereffects that delay would have made quite impossible.

The cultivation of that conscience that comes of a man communing with himself will lead us faithfully to train every sense with which God has blessed us, to develop manual dexterity, a touch of gentleness with strength and precision that will be recognized at once by our patients. Sight, hearing, smell and taste should not be neglected. Bandaging to-day is almost a lost art; the study of the mechanics of internal medicine and surgery has not received the attention its importance merits. How often do we find the narrowing of an outlet, a sluggish muscular wall or an inconsequent deformity of the foot, for instance, inducing conditions of such gravity that the slight and often perfectly remediable mechanical defect is quite lost sight of!

The enormous importance of the laboratory and its brilliant achievements in medicine are fully appreciated, and due credit is accorded the courageous minds that have evolved and demonstrated theories and facts that stand out as the milestones of real progress in the advance of medicine toward the goal of exact science.

Among the unfortunate consequences of this great advance is the dwarfing of the purely clinical side of medicine. The impulse to turn to the laboratory for the diagnosis, and afterward to try to fit the laboratory findings to the individual before us, is undoubtedly the tendency of the day. We should center on our patients at the bedside the closest kind of study, and let there be, *if necessary,* a tentative diagnosis, turning to the laboratory, afterward, for a confirmation, or a refinement of our conclusions. On the other hand, if we are not well trained clinically we should be quite at a loss if we found ourselves, perchance, beyond the comforting reach of the Roentgen-ray apparatus, and the diagnostic and therapeutic laboratory.

What bearing has the development of the so-called crowd or collective conscience on our aims in medicine? Let us see. With the growth of this standard the appalling record of 600,000 lives sacrificed annually in this country to preventable diseases would soon dwindle into comparative insignificance; there would be undoubtedly to-day a department of health with a representation in the cabinet, and the proper institution of sanitary administrative methods would yield in our civil communities the brilliant results that have followed these methods where the medical officers of the Army and Navy have been permitted to carry them out, hampered possibly only by insufficient funds, or the military features of the situation.

It is more than probable that this crowd conscience will be developed, as it should be, only when its importance to the masses is brought home to them on a dollars-and-cents basis. The lack of the so-called executive or collective conscience in these United States is not only amazing—it is appalling. The fact that this great country has no exhibit at the International Exposition of Hygiene, in Dresden, now in session, is perhaps not fitting for me to comment on.

You hear young men say that medicine is overcrowded and that so much has been accomplished that there is little left to be done. Should there be no further discoveries, or advances, in medicine and surgery from now on, and we were permitted to make use intelligently of the facts now in hand, the achievements of preventive medicine, administrative sanitation and bold surgical conservatism would startle the world.

The crimes of commission that find their way to our criminal courts sink into insignificance when compared with the grave crimes of omission and their far-reaching, direful consequences which we, in hardened indifference, take as a matter of course. Here is an almost untouched field. Results can come only, however, from an awakening of the crowd conscience through education, team work and convincing demonstration.

An example of the beneficent effects of the collective conscience is seen in the boards of trustees, guilds, societies and organizations that make possible our great hospitals and educational institutions. These splendid citizens often contribute liberally in a financial way and bring to bear their business training and administrative ability, to say nothing of time and painstaking labor, in this field of work. They should share with us the honors that may come to us, for they have made possible what measure of success may be ours.

President Taft showed thorough appreciation of this most excellent type of citizen when he eulogized recently the man who contributed to the revolutionary cause, without hope of reimbursement, $650,000—an enormous fortune for those days. Such as he made the success of our arms possible, and great sacrifices of this sort merit recognition along with the actual achievements of war. Those who by their sagacious activities awaken and keep alive intelligent patriotism, thus making possible an approach to preparedness when the horizon is not darkened by war-clouds, should be classed with the great leaders of peace times. The pseudo-patriotism and hysterical outbreaks that often come with the declaration of war are out of time and out of tune, and while ostensibly well meaning, are of little account.

The activities of physicians in civil life are almost entirely along humanitarian lines, while in the Army and Navy humanitarian considerations are of secondary importance, military duties being paramount. To understand properly the necessity for this subordination of the humanitarian aims of medicine, it will be well to outline some of the unusual features of the fighting establishments, and the Navy will serve admirably for the purpose.

The Navy is manned, equipped, organized and maintained to fight. The fleet is the Navy. The development of the highest type of fighting efficiency in the fleet should be the aim of all concerned. This problem is decidedly more intricate and difficult than is generally realized, both inside and outside the service. The battles of the future will no longer be the battles of brawn; they will be the battles of brains and they will be won by the combatant showing the highest development along this line. Science has taken a hand, and in the front rank we find specialized medicine, chemistry, mathematics, mechanics, physics and many scientific offshoots so harnessed, adapted and molded as to make possible a grade of military efficiency that was scarcely dreamt of a decade ago. Consider for a moment what the development of electricity has accomplished; what chemistry has contributed in the way of powder alone; what oil as fuel will do!

Each new activity brings to bear on the personnel new influences often seriously damaging to efficiency. It is of the greatest military importance that the medical department should not only familiarize itself with these scientific specialties and be prepared to repair the damage to the personnel from their employment in the fleet, but what is still more important, it must prevent and actually is averting this damage.

Side by side stand the lieutenant and the surgeon; the one by drilling and discipline striving to attain a high grade of efficiency, the other, who has selected at the recruiting station the physical type best fitted to meet the peculiar requirements, watches intently for effects that are likely to impair efficiency. For example, recently, on an endurance run, thirty odd men, utterly prostrated, were carried out of the fire room of a ship.

What was the cause of this serious breakdown in the personnel? Was it due to excessive heat, to contaminated air, to improper food or water? Or was it due to the assignment to duty in the fire room of a type physically unsuited to the arduous exactions of that station? These are the questions that would naturally come to the mind of an alert medical officer, and it is along these lines that the Bureau of Medicine and Surgery is bettering conditions.

The activities of the medical department are by no means confined to the personnel. The plans of new ships are always referred to the Surgeon-General before they are finally approved by the Navy Department. It is his duty to give them careful study, recommending such changes as in his opinion will keep the physical make-up of the personnel at the highest pitch, and at the same time will in no way impair the fighting possibilities of the ship. These recommendations are not in any sense prompted by humanitarian considerations; they are made solely to promote and maintain military efficiency.

What is the character of the personnel with which we have to deal? Let us consider two types of officers, the two whose duties and responsibilities are more closely allied than any of the others—line officers and medical officers.

The line is recruited from all over the country, from practically every grade of society, who, after passing rigid professional and physical examinations, begin a four years' technical course at the Naval Academy with an additional two years spent at sea, before they are finally commissioned. During the four years at Annapolis, the highest aims of their profession are instilled into them, such as discipline, honorable dealing, manliness, physical and moral courage, a proper conception of duty and its responsibilities, loyalty and patriotism and a willingness unhesitatingly to make that greatest of all sacrifices for their country's sake should occasion demand it. This splendid spirit was highly developed in that superb soldier, the late Captain Capron of the Army, who, on hearing that his son, a Rough Rider, had been wounded during the battle of San Juan Hill, in which both had been engaged, sought him out to find him lying dead at the roadside. Brushing back the hair from his brow, he scanned the features, strong even in death, and said, patting him affectionately on the head, "Well done, old fellow."

The development of this splendid spirit is by no means confined to the line; it underlies and guides the activities of the entire commissioned and enlisted personnel of the Navy.

The Medical Corps is the only branch of the service which may select its own personnel. Not only must a candidate be a graduate in medicine, but he is required to have served in a great civil hospital and present a diploma as a guarantee of the character of this service, before he is eligible to examination for a commission as assistant surgeon. An examining board then passes on his physical and professional qualifications, and if he meets the requirements, he is commissioned and enters the Naval Medical School, where he is taught the military features of his duties and is given special training to fit him for the great responsibilities of his new career. He is required to pass still another examination on the completion of this course, when he is assigned to the fleet for duty.

To have the right to wear the uniform of the United States Navy to-day is one of the greatest honors that can come to any of us, and that uniform which bears the insignia of the Medical Corps, with all it implies, is without a peer in the service. It is hoped that you will carefully consider these facts in choosing your life work in medicine

And what of the enlisted personnel? With the passage of masts, spars, sails and wooden ships went much of the romance of the sea, and along with the rest that faithful, resourceful type, the old-time sailorman. He is but a memory to-day, having been replaced by the alert young seaman-mechanic. The pace, with its complicated responsibilities, became too fast for the old fellows, and they have dropped out of the race completely.

In the Atlantic Fleet on its round-the-world cruise the average age of the enlisted personnel was about twenty-one years, on hearing which some humorist remarked that the Navy was manned by boys.

In order better to understand this new-type seaman-mechanic, let us look into a turret and see him actually at work. There are innumerable other situations in the complex make-up of a battleship that might be selected, still the turret will perhaps serve our purpose as well as any.

Side by side within this armored citadel lie the breeches of two monster 14-inch guns. The guns with their crews are separated by an incomplete partition or bulkhead, thereby stimulating a spirit of rivalry between the two gun-crews. There we see the turret officer, the turret captain, the gun-pointers and the crews. Gold lace has given way to dungarees; the cap alone distinguishes the commissioned officer—the men are nude to the waist. Each man is at his station, forming an unbroken chain from the gun to the magazine below with its tons of powder and shell.

The range of these guns is some 14 miles; the projectile, propelled by the burning of 350 pounds of powder, weighs 3/4 of a ton, costing about $500 for a single discharge. The monster blast is likely to destroy all unprotected ear-drums within a given zone, at the same time liberating gases poisonous in the extreme, so much so that, in one ship in which artificial ventilation was maintained during battle, several men were found unconscious in a single compartment into which the blowers had driven these noxious fumes.

From the fighting top comes a message to the central station in the bowels of the ship; a calculation is hastily made and directions are sent out to the turrets. The guns are trained accordingly; the gun-pointer picks up the enemy with his telescopic sight; the cross-wires are on him, the order to fire rings out, the gun is discharged and mathematically there should be a hit. We have, however, a personal element to take into consideration.

The picture is inspiring. The perfect team-work, the silence, the earnestness of great purpose written on each face strikes even the casual observer. The hazards of the situation are fully appreciated by all, yet the very dangers tempt those of the proper make-up for a fighting organization to seek these assignments. By constant drilling, mutual dependence, and perfected discipline the chances of mishap become very small; yet one weak link in the chain may instantly hurl all into eternity and perhaps destroy the ship.

What part does the medical officer play in all this? It is his duty to weed out the physical weaklings, or build them up, to safeguard these picked men from disease, to eliminate those whose nervous make-ups unfit them for this kind of duty; in other words, he has before him not only a study of the gross physical features of the personnel, but their psychologic characteristics as well. Let us center on the gun-pointer. If this man is of a high-strung nervous type, or has "too much" education, it has been found that, when the cross-wires of his telescopic sight are on the target, his alert mind is centered on the possibilities of the ignition of 350 pounds of powder at his side, and the chance for a hit has slipped by. His personal conscience has failed to be subordinated to his crowd conscience as it should be in this situation. It has been found that the use of telescopic sights at drills has in many instances seriously impaired the vision of these men. This break in the chain is of serious moment and is receiving the careful study its importance merits. The constructors may give us stability, the engineers high speed, the ordnance officers effective rifles and the commanders maneuver with consummate skill, still if the gun-pointers cannot see straight we are not going to have hits and the outcome of battle might hinge on this defect.

It is believed that the next naval battle between powers of the first class will last less than thirty minutes. By that time either the one or the other combatant will probably be annihilated or the supply of ammunition exhausted. The wounds of naval warfare are peculiarly destructive—lacerating tissues, splintering bones, killing outright—and are attended with profound shock; practically all are infected from the start. What are the aims of the medical department during battle? They should be military absolutely; humanitarian activities, although greatly to be desired, have no place in this situation, might even lead to additional casualties and possibly the failure of our arms.

At the close of battle the activities of the medical department at once become humanitarian, and our efforts are often exerted, not only in behalf of our own wounded, but in behalf of those of the enemy as well.

At this point the heretofore diverging paths of civil and military medicine are reunited on humanitarian grounds under the beneficent influences of the red cross. Our military efforts may lead to broad humanitarian results in making victory more decisive, thus entailing fewer casualties, and, further, the war itself may have been waged by reason of inhumanities which would cease with the success of our arms. The humane treatment of prisoner-patients of war by medical officers, before and after hostilities have ceased, is a potent factor in reestablishing friendly relations afterward.

Concentration in the past on the purely military features of the fleet has led to a one-sided development with a neglect of the humanities of naval warfare that would have made possible a breakdown in the medical department, the most appalling in history.

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In addition to the complex responsibilities of naval medicine, outlined, I fear, at too great length already, are the duties that go with service in the field which are precisely the same as those of the Army, except that they are naturally not quite so extensive. There has been no war in recent times, however, in which the navies of the world have not taken part in operations on shore.

The proper equipment and execution of these multifarious activities have led to the establishment of great supply depots, hospital and supply ships and the like; there are over 2,000 individuals serving in and under the medical department of the Navy to-day.

A word in conclusion as to what is done along humanitarian lines. Each ship has its sick-bay which may be likened to an army post hospital, and there are some fifty odd ships in commission.

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From what has been said it is plain to be seen that in the Navy certainly the personal conscience must be subordinated to the collective conscience, and humanitarian aims give way to the military, up to a given point, at least. The medico-military duties referred to necessitate a profound study of all activities connected with naval warfare, in order to implant in the service, intelligently and effectively, what scientific medicine, in all its ramifications, has to offer to enhance military efficiency. It gives me great pleasure to express my unqualified appreciation and gratitude to the many skilled specialists in civil life, and, particularly, to the Faculty of Jefferson Medical College, for the painstaking, patriotic assistance they have unfailingly given us in our efforts to accomplish this great work.

If a single individual within hearing of my voice, or elsewhere, is helped in the choice of his aims and ideals in medicine, or in any other calling—if he is aided in any measure to the development of such a proportion between his individual conscience and his collective conscience as to lead to personal success and broadened public service in the community in which he resides, I shall feel fully recompensed for the effort that has been made.

SOME TENDENCIES IN MEDICAL EDUCATION IN THE UNITED STATES [*]

LEWELLYS F. BARKER, M.D.
Professor of Medicine in Johns Hopkins University and Physician-in-Chief to Johns Hopkins Hospital
BALTIMORE

THE PASSING OF THE INFERIOR MEDICAL SCHOOLS

If you compare medical education in the United States twenty years ago with what it is to-day, you cannot help but be impressed with the remarkable change which has taken place. The period has witnessed a reform which is noteworthy in history. During the past decade, especially, there has been a steady decrease in the number of inferior medical schools and an elevation of standards in the better schools. The country has passed rapidly from a stage in which the proprietary medical school was dominant to one in which all, or nearly all, of the better medical schools are the medical departments of universities.

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station? These are the questions that would naturally come to the mind of an alert medical officer, and it is along these lines that the Bureau of Medicine and Surgery is bettering conditions.

The activities of the medical department are by no means confined to the personnel. The plans of new ships are always referred to the Surgeon-General before they are finally approved by the Navy Department. It is his duty to give them careful study, recommending such changes as in his opinion will keep the physical make-up of the personnel at the highest pitch, and at the same time will in no way impair the fighting possibilities of the ship. These recommendations are not in any sense prompted by humanitarian considerations; they are made solely to promote and maintain military efficiency.

What is the character of the personnel with which we have to deal? Let us consider two types of officers, the two whose duties and responsibilities are more closely allied than any of the others—line officers and medical officers.

The line is recruited from all over the country, from practically every grade of society, who, after passing rigid professional and physical examinations, begin a four years' technical course at the Naval Academy with an additional two years spent at sea, before they are finally commissioned. During the four years at Annapolis, the highest aims of their profession are instilled into them, such as discipline, honorable dealing, manliness, physical and moral courage, a proper conception of duty and its responsibilities, loyalty and patriotism and a willingness unhesitatingly to make that greatest of all sacrifices for their country's sake should occasion demand it. This splendid spirit was highly developed in that superb soldier, the late Captain Capron of the Army, who, on hearing that his son, a Rough Rider, had been wounded during the battle of San Juan Hill, in which both had been engaged, sought him out to find him lying dead at the roadside. Brushing back the hair from his brow, he scanned the features, strong even in death, and said, patting him affectionately on the head, "Well done, old fellow."

The development of this splendid spirit is by no means confined to the line; it underlies and guides the activities of the entire commissioned and enlisted personnel of the Navy.

The Medical Corps is the only branch of the service which may select its own personnel. Not only must a candidate be a graduate in medicine, but he is required to have served in a great civil hospital and present a diploma as a guarantee of the character of this service, before he is eligible to examination for a commission as assistant surgeon. An examining board then passes on his physical and professional qualifications, and if he meets the requirements, he is commissioned and enters the Naval Medical School, where he is taught the military features of his duties and is given special training to fit him for the great responsibilities of his new career. He is required to pass still another examination on the completion of this course, when he is assigned to the fleet for duty.

To have the right to wear the uniform of the United States Navy to-day is one of the greatest honors that can come to any of us, and that uniform which bears the insignia of the Medical Corps, with all it implies, is without a peer in the service. It is hoped that you will carefully consider these facts in choosing your life work in medicine

And what of the enlisted personnel? With the passage of masts, spars, sails and wooden ships went much of the romance of the sea, and along with the rest that faithful, resourceful type, the old-time sailorman. He is but a memory to-day, having been replaced by the alert young seaman-mechanic. The pace, with its complicated responsibilities, became too fast for the old fellows, and they have dropped out of the race completely.

In the Atlantic Fleet on its round-the-world cruise the average age of the enlisted personnel was about twenty-one years, on hearing which some humorist remarked that the Navy was manned by boys.

In order better to understand this new-type seaman-mechanic, let us look into a turret and see him actually at work. There are innumerable other situations in the complex make-up of a battleship that might be selected, still the turret will perhaps serve our purpose as well as any.

Side by side within this armored citadel lie the breeches of two monster 14-inch guns. The guns with their crews are separated by an incomplete partition or bulkhead, thereby stimulating a spirit of rivalry between the two gun-crews. There we see the turret officer, the turret captain, the gun-pointers and the crews. Gold lace has given way to dungarees; the cap alone distinguishes the commissioned officer—the men are nude to the waist. Each man is at his station, forming an unbroken chain from the gun to the magazine below with its tons of powder and shell.

The range of these guns is some 14 miles; the projectile, propelled by the burning of 350 pounds of powder, weighs 3/4 of a ton, costing about $500 for a single discharge. The monster blast is likely to destroy all unprotected ear-drums within a given zone, at the same time liberating gases poisonous in the extreme, so much so that, in one ship in which artificial ventilation was maintained during battle, several men were found unconscious in a single compartment into which the blowers had driven these noxious fumes.

From the fighting top comes a message to the central station in the bowels of the ship; a calculation is hastily made and directions are sent out to the turrets. The guns are trained accordingly; the gun-pointer picks up the enemy with his telescopic sight; the cross-wires are on him, the order to fire rings out, the gun is discharged and mathematically there should be a hit. We have, however, a personal element to take into consideration.

The picture is inspiring. The perfect team-work, the silence, the earnestness of great purpose written on each face strikes even the casual observer. The hazards of the situation are fully appreciated by all, yet the very dangers tempt those of the proper make-up for a fighting organization to seek these assignments. By constant drilling, mutual dependence, and perfected discipline the chances of mishap become very small; yet one weak link in the chain may instantly hurl all into eternity and perhaps destroy the ship.

What part does the medical officer play in all this? It is his duty to weed out the physical weaklings, or build them up, to safeguard these picked men from disease, to eliminate those whose nervous make-ups unfit them for this kind of duty; in other words, he has before him not only a study of the gross physical features of the personnel, but their psychologic characteristics as well. Let us center on the gun-pointer. If this man is of a high-strung nervous type, or has "too much" education, it has been found that, when the cross-wires of his telescopic sight are on the target, his alert mind is centered on the possibilities of the ignition of 350 pounds of powder at his side, and the chance for a hit has slipped by. His personal conscience has failed to be subordinated to his crowd conscience as it should be in this situation. It has been found that the use of telescopic sights at drills has in many instances seriously impaired the vision of these men. This break in the chain is of serious moment and is receiving the careful study its importance merits. The constructors may give us stability, the engineers high speed, the ordnance officers effective rifles and the commanders maneuver with consummate skill, still if the gun-pointers cannot see straight we are not going to have hits and the outcome of battle might hinge on this defect.

It is believed that the next naval battle between powers of the first class will last less than thirty minutes. By that time either the one or the other combatant will probably be annihilated or the supply of ammunition exhausted. The wounds of naval warfare are peculiarly destructive—lacerating tissues, splintering bones, killing outright—and are attended with profound shock; practically all are infected from the start. What are the aims of the medical department during battle? They should be military absolutely; humanitarian activities, although greatly to be desired, have no place in this situation, might even lead to additional casualties and possibly the failure of our arms.

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It was not easy to bring such a change about. Every reform entails hardships; attempts at betterment invariably excite some animosity and antagonism. It says much for the spirit of the men in the medical profession and in the faculties of the medical schools that the majority of them have kept in mind the welfare of the profession, of medical education and of human service, and have been so ready to sacrifice their private interests when such self-denial was demanded.

[The author then discusses: (1) The reduction in the number of medical schools; (2) the increased requirements for admission; (3) the elevation of standards in teaching.]

The success of the better schools, the enthusiasm of the students trained in them, the opportunities which have opened up for these students after graduation, the scientific investigations leading to publication which have been carried on; all have contributed to spur other medical schools in different parts of the country to emulate the examples set.

There have been two main difficulties: (1) the financial one of equipping the expensive laboratories of anatomy, physiology and pathology and paying the staff sufficient amounts to permit them to devote their whole time and energies to the work; and (2) the absence of endowed hospitals under the control of medical schools or universities, into the wards, dispensaries, and laboratories of which students could be taken actually to participate in the routine work of diagnosis and treatment.

[Dr. Barker then describes the agencies which have been influential in securing the reforms, emphasizing especially the work of the Council on Medical Education and that of the Carnegie Foundation for the Advancement of Teaching recorded in the report of Mr. Abraham Flexner.]

The Council has performed its work almost wholly through the cultivation of medical opinion; it simply gives publicity to the information which it collects. It has no power whatever to dictate to medical schools or to set standards either for the schools or for the state examining boards, but it has so deliberately and successfully, through the currency given to the results of its inquiries, worked on the collective medical mind in the United States, that a moral pressure, irresistible in its coercive force, has come to be exerted. A school, for example, which is heralded in the over 50,000 copies of THE JOURNAL of the American Medical Association as one which turns out graduates of whom more than 20 per cent. fail at the state licensing examinations, or another, which, after personal and unbiased inspection by members of the Council, is classified as a "rejected" school, has a sealed fate.

The Council has been none the less successful for having avoided utopian attempts; it has been satisfied with a gradual, though steady, stride toward attainable ideals. It recognizes the manifold difficulties of the pedagogic situation, is aware of the necessity of taking time, of educating those concerned and, especially, of the indispensableness of endowment from the state, or from private funds if desired reforms are to be instituted. . . .

Through the various influences above mentioned inferior medical schools are rapidly being weeded out and the schools left are steadily being improved. The nation has set itself resolutely to the task of reconstruction and it will not rest satisfied until its medical schools have reached a degree of efficiency and attained to a power of public service which will bear favorable comparison with similar institutions anywhere in the world.

POSITION OF AND SOME TENDENCIES IN THE NON-CLINICAL DEPARTMENTS

On examination of the non-clinical departments of the better medical schools in the United States it will be seen that a definite policy has been established; the *principles of this policy must sooner or later be observed* by every medical school which hopes that its conduct may be held in good repute.

THE POLICY ESTABLISHED

The essentials of the policy include: (1) commodious laboratories equipped with all modern appliances for teaching and investigation in anatomy, physiology, pharmacology, biochemistry and pathology, (2) "full-time" professors with, for the more part, "full-time" assistants, trained or undergoing thorough training in these fundamental disciplines, men who are enthusiastic teachers and have a zest for, and success in, prosecuting original inquiries, and (3) an annual budget at the disposition of the staff adequate for improvement of equipments, for supplies and expenses and for the services of janitors, clerks and mechanical assistants. These departments are, therefore, not only places in which well-organized courses of instruction for medical students are offered; they are also centers in which knowledge is seethingly advanced.

Under this policy the non-clinical departments are flourishing. Glance through "American Men of Science" and make lists of those who have been led to cultivate these fields and have been notably successful in the work. You find an imposing array. Look over the journals, most recently founded, devoted to the different subjects and the proceedings of the scientific societies and you will be gratified to find how speedily and notably knowledge has been and is being increased.

The best American work is receiving adequate foreign recognition, and while but few European students have thus far been attracted to American non-clinical laboratories for work, the stream of students which formerly flowed in the other direction has to a large extent ceased.

DANGERS THREATENING THE NON-CLINICAL DEPARTMENTS

The non-clinical chairs in the medical schools may be to a certain extent, however, in danger. The possibility of evil has arisen not at all through hostile intention, but rather through certain conditions, partly external, partly internal, which may place them in a trying situation. Of these conditions I shall refer now only to three, viz., (1) the rise of institutions devoted solely to research, (2) the rapid formation of medical faculties in state universities, and (3) the pecuniary penalty attaching to chairs on a "university basis."

[In the full address these three conditions are discussed at some length. While the advantages of the institutes for research are emphasized, it is intimated that these institutions should be integral parts of universities and that the latter have made a serious mistake in losing the research institutes through failure to recognize the necessity of separate provision for the functions of teaching and research.

The author also explains why the demand for professors in the non-clinical departments has been greater than the adequate supply.]

. . . Thus, through the exit at the top of many of the best and through the entrance at the bottom of too many immature and partially trained, the high standards thus far maintained for the non-clinical chairs, run some risk of depreciation. At present, positions, such as they are, can be obtained too easily; the period of training is so shortened, as to make the attainment of a high grade of scholarship difficult. There is the dangererous possibility, too, of promoting to full professorships men of mediocre talent; who, in a longer and more exacting discipline, would find their academic level, or would actually be weeded out in a competition in which the prizes were larger and the number more extended of intellectually superior contestants.

[The financial status of the professor is next analyzed and the insufficiency of existing salaries pointed out.]

The occupants of non-clinical chairs, like those of the chairs in the arts departments, have little means of supplementing their salaries by outside work. Some of them do executive work which yields small additional emoluments; some write text-books which, if successful, bring in a modest amount of royalties; now and then a professor receives extra pay as a member of a federal, state or municipal commission of experts. There is no income, or very little, from consultation practice, for anatomists, physiologists and pathologists have but rarely had the clinical training necessary to make them expert diagnosticians and therapeutists; moreover a code of ethics has gradually developed which goes far to prevent such professors from engaging in the practice of medicine, except possibly a limited consultation work, even when their experience has been such as to make them equal to it. The feeling prevails that such outside work, so different from that of his regular activities, lessens a professor's opportunities for scholarly study by its encroachment on his time and energies and detracts from the dignity, simplicity and high-mindedness of the teacher's calling. . . .

That some great teachers and investigators are attracted to the non-clinical chairs despite the small material rewards and the heavy financial and social penalties pertaining to the positions, has been fully demonstrated; that some will continue so to be attracted we can be sure. Men who inordinately love gain and material advancement are not likely to work toward professorships; it is perhaps well that the professorial class is recruited elsewhere. The power of disinterested scientific creation and the passion for truth and research are seldom cerebrally compatible with the money-getting gift, the capacity to devote one's self to, and to keep the mind concentrated on, financial gain. The life of a professor is necessarily simple and frugal; his wife can make no pretense to the absurd and vulgar extravagance that Irving Batcheller facetiously and satirically describes as "keeping up with Lizzie." The career of a professor is often, however, one of profound influence and of steady happiness, of high honor and well-deserved respect, and these are rewards not likely to be regarded lightly among the more idealistic of our youth.

Still, it must frankly and anxiously be admitted that there are elements in the financial status of non-clinical professors which make us stand in pause when we think intently on the situation. No matter how keen the love of teaching, how hearty the satisfaction in solving scientific problems, a strong man can scarcely be expected to devote himself to a life of instruction and research when the remuneration is inadequate to the real needs of himself and his family during his period of activity, and to provision for his old age.

It is highly desirable that the compensation of professors should be a little above rather than below the line of comfort for the locality in which they live. It should be large enough to furnish the necessaries and conveniences of life, without superfluity, and should not be so small as to prevent a man from saving each year a part of his receipts, even though a smaller fraction of them than Bacon recommends. The struggle to live, financial worries, inability to educate the children of the family, too great personal hardship, and the social penalties of too small an income are sure more or less to inhibit a man in his work. . . .

Society ought not financially so to penalize the professorial class that the occupancy of chairs by the stronger personalities will be limited to bachelors, to childless men, to men enriched through the accidents of inheritance or marriage, or to married men who consent to doom their wives and children to the mitigated happiness which poverty affords.

Men of some sort there will naturally be who will seek salaried positions, no matter how low the salary, and, fortunately, the love of teaching, of study, and investigation will always secure a certain number of gifted men whose passion will make them work at the thing they like under any conditions. But if the fiscal arrangements of professorships were to be made in such a way that they attracted chiefly mediocre persons to whom a salaried position spells security, the higher interests of scholarship would suffer. Attention need scarcely be directed to the progressive declension of our public schools through precisely this enforced withdrawal of their abler men.

The interest in, and joy of, work, the desire of public service, the anxiety to do something well, the longing for the good opinion of one's colleagues, the obtaining of leisure to devote one's self to the finer interests of life—these must always be the great motives which lead men to become university professors. The material rewards are not, however, wholly insignificant. They certainly exert some influence. . . . In salaried establishments, it is not always possible to avoid the defects of "institutionalism"—bureaucratic officialdom, the tyrannies of a mandarinate, and oligarchic indolence; those interested in the organization of asylums for the insane have repeatedly lamented this fact. .

[The author makes various suggestions for improving the financial status of professors.]

The education of public opinion to greater social recognition of the professorial class might help; it progresses rather slowly in a country in which "success' is largely, as yet, measured by income; those who have not learned how to get money and to keep it are too often, by the unthinking, indiscriminately classified, not quite, perhaps, as pariahs, cut off socially from hope, but still as futile persons, too innocent for "achievement" in a land of opportunities!

An especially pressing factor during recent years has been the gradual rise in the cost of living without any proportionate increase in the salaries of university professors. The average price of commodities has increased by 33 per cent. to 50 per cent., but the professor who was paid $2,000 or $5,000 before this rise took place is still compelled to live on the same amount. . . .

The whole situation should certainly be canvassed carefully and the means discovered for enhancing in various ways the social and pecuniary rewards of professors in the non-clinical branches of our medical schools.

POSITION OF AND TENDENCIES IN THE CLINICAL DEPARTMENTS

The policies followed in the clinical departments of the better university schools are far from uniform. There is, as yet, no unanimity of opinion as to the best way to improve these departments. All are agreed as to certain fundamental points: the desirability (1) of more thorough practical teaching and (2) of an increase in scientific productivity. How best to move toward the practical realization of these ideals is a question.

A STATE OF FLUX

The clinical departments of the medical schools of the United States are on the eve, it would seem, of important reforms. To bring them about, radical changes may be necessary. Faculties will, doubtless, be led to experiment in various ways; only after trials through a considerable period shall we be able to decide on the arrangements and organization suitable for general adoption in the better schools. A state of flux, already evident in the clinical departments, is, therefore, likely to continue and to become even more pronounced during the next decade.

In medicine, which is, and must always be, the department of primacy in a medical school, and also in surgery the tendency to fill chairs by attracting able men from a distance has finally begun. It was formerly impossible on account of the absence of school-controlled hospitals. The medical faculties were compelled to accept as their clinical professors men who, developing locally, were the physicians to municipal or to privately endowed hospitals. In no other way could "clinical material" for the instruction of students be obtained. Now that universities are beginning to have their own hospitals, or to enter into arrangements with other hospitals through which their professors are assured directing places on the hospital staff, professors may be called from a distance, or be selected from the local profession, on account of their skill in diagnosis and therapy, their ability as teachers and their power as original investigators.

THE PRINCIPAL CLINICAL CHAIRS AND THE SPECIALTIES

The three principal clinical chairs in a medical school must always be those of medicine, surgery and obstetrics. A general training in each of these branches is absolutely essential in the education of every medical student.

In the specialties, there is time, in the brief period of the clinical curriculum, to teach the student only the most salient methods of diagnosis and treatment, those suited to the needs of the general practitioner.

[The proper relation of the specialties to the principal clinics is somewhat fully discussed. The importance of adequate special clinics for the postgraduate work is emphasized.]

THE HOSPITALS OF THE MEDICAL SCHOOLS AND THEIR MANAGEMENT

The most pressing need in the clinical departments of the medical schools of the United States, at present, is that of school-controlled hospitals in which the students may actively participate in the work of diagnosis and treatment and, under skilled direction, be held responsible therefor. In the hospitals, the conditions should permit of an adequate organization for the three great functions of a university clinic—practice, teaching, and research. These hospitals should be large enough to supply sufficient clinical material in internal medicine, surgery, obstetrics and in the principal specialties. The organization should ensure a large degree of departmental autonomy while providing for proper correlation of the activities of all the clinics.

It is only here and there in the United States that one finds belonging to a medical school (1) a hospital of sufficient size, equipped with teaching and working quarters, with wards situated in immediate contact with commodious clinical laboratories, (2) an organization according to which the professors of the clinical departments of the medical faculty are also the principal physicians and surgeons on the hospital staff, the whole control of the individual departments being in the hands of the respective professors. Until medical faculties obtain by endowment or agreement facilities of this sort, the clinical sciences must remain backward in their development.

[In the complete text the hospital situation is analyzed, the difficulties now existing pointed out, and measures for improvement advised.]

DEPARTMENTS OF INTERNAL MEDICINE

The functions of each of the clinical departments are manifold and complex. Let me refer to some of the activities of the branch about which I know most; namely, internal medicine. If one attempt to resolve the functional complexity of that branch into its component aspects one can distinguish, at once, at least four principal parts:

1. The *practice of medicine* in the public and private wards and in the out-patient department and the laboratories thereto pertaining, by which I mean the actual diagnosis and treatment of disease in the patients who enter the clinic.

2. The teaching in the wards, in the dispensaries and in the laboratories of (a) undergraduate medical students; (b) assistants and associates; (c) physicians taking postgraduate courses in the department.

3. The prosecution, by professors, assistants and postgraduate students, of original inquiries in internal medicine, the search for new methods of diagnosing and treating disease, the attempt to advance our knowledge of the subject beyond its present boundaries.

4. The administrative duties, including the admission, transfer and discharge of patients, interviews and correspondence with physicians who bring patients, and with the relatives and friends of the sick, the relations of the clinic to housekeeping and nursing, the maintenance of records and statistics, the arrangements for publications, the superintendence of budgets and expenditures, the making of appointments and promotions, the attendance on departmental and inter-departmental conferences, the formulation of curricula, the organization, equipment and running of the several clinical laboratories, the library, and the museum, the integration of departmental activities, the development of an *esprit de corps*, etc.

THE PRACTICE OF MEDICINE IN THE CLINIC

Turning now to a little closer examination of the work of the medical clinic of a modern school and hospital it will be found that the practice of medicine in the clinic itself is, separately considered, no small task. In order that the teachers and investigators in the clinic may be sure of getting what they need, or prefer, in their work, a large number of cases from which to select must be admitted to the hospital. The larger the clinical material available the better. The time may come when, in addition to the general reception wards of the stationary clinic, there will be special wards to which may be transferred the cases most suitable for teaching, on the one hand, and for investigation on the other. The larger reservoir for the reception of the cases previous to selection will always be necessary, for in the first place, until a patient has been fairly well studied, one cannot be sure how valuable he may be for illustration in teaching or for the suggestion of problems for original scientific investigation; in the second place, every great hospital must, on humanitarian grounds, take in many cases which, at the time, may be of relatively little educational or scientific interest.

A large department for out-patients, a so-called "policlinic" or "ambulatorium," is also necessary for three reasons; first, on humanitarian grounds, to provide treatment for the poor who, though not well, are not so sick as to require admission to the wards of the hospital; again, as a feeder to the stationary clinic, to which can be sent the sicker patients, those exemplifying unusually well the pathological states under consideration at the time in the educational work in the wards, and those presenting obscure conditions, necessitating for diagnosis more elaborate studies than are feasible in the policlinic; and finally, for teaching purposes in the policlinic itself, for here material of a special kind becomes available for the teaching of students, including not only slightly ill patients suitable for the practical courses in physical diagnosis and other propedeutic studies, but also precisely the types of minor ailments which the young physician is most likely to meet when he starts out in practice.

[Dr. Barker describes in more detail the method by which the policlinic can be utilized for teaching, and also refers to the vexed problem of private wards in connection with university hospitals.]

The responsibilities of diagnosis and treatment of this vast collection of clinical material, public and private, stationary and ambulatory, are a grave burden which the clinical staff must bear. The mere technical procedures of the thorough examinations made and of the therapeutic measures carried out involve a large expenditure of time and energy. Students, house-officers, and senior assistants may well bear the brunt of this work, but, in addition, an associate professor, or in the larger institutions, preferably a full professor, may well devote the major part of his time and energies to it, leaving most of the teaching and experimental investigation to others. The philanthropic work of the hospital, as well as the reputation of the institution among physicians and among the laity, depends on the thoroughness and courtesy with which this work is done. Moreover, the teaching and investigative functions of the clinic can be properly developed by those who are devoted especially to them only after this fundamental function of diagnosis and treatment has been fully provided for.

[Here the author calls attention to the great differences in the functions of men who work in clinics and those who work wholly in laboratories.]

The application of the principles of "scientific management" to the details of the work in the clinic promises improvements. If every element in the work of the clinic, from out-patient department to private ward, were subjected to searching inquiry, much waste of time, waste of energy and waste of material could be eliminated. At present there is little uniformity in the technic of clinical examinations and the personal element enters far too greatly. It is highly desirable that experts shall decide on the one best method to use in each instance, that these best methods shall be adopted as standards, the efficiency of all the workers being gradually brought up to these standards by careful instruction, and the organization made such that the plans will be self-perpetuating. This task is far easier to talk about than to accomplish, but it should be undertaken.[1] Modern commerce is developing systems of efficiency beside which the management of clinics cuts a sorry figure. We need a "commercialization of medicine" in the good sense and must see to it that the term "medicalization of business" is not coined as a byword of reproach!

THE TEACHING OF INTERNAL MEDICINE

In the performance of the second great function of a medical clinic, that of teaching in the wards, in the dispensaries and in the clinical laboratories, a fairly large staff, a well-thought-out plan and the devotion of much time and energy are essential. The amount of teaching in a department of internal medicine is, and should be, greater than in any other department of a medical school. It makes up a large proportion of all the work of the third and fourth years, and from now on is likely to include also a part of that of the second year of the undergraduate course.

Since the graded medical course was inaugurated by Northwestern University many years ago, American clinicians have gradually arranged a sequence of studies in the medical clinic which permits of a methodical advance in the instruction. The student from the beginning of his clinical studies is made regularly and purposefully to climb a ladder which connects the fundamental training of the non-clinical departments with the professional occupation which he is to take up after graduation. Instead of the didactic and merely demonstrative teaching which formerly prevailed, a thorough practical training in clinical work is now required. After a general introduction to clinical methods and aims at the end of his second year, the student is, in his third year, instructed in the principles and art of physical diagnosis (inspection, palpation, percussion and auscultation), and he is taught, in the systematic practical course given in the clinical laboratory, how to make examinations of the sputum, urine, stomach contents, feces, blood and the various body fluids. In the third year, too, he learns the method of taking clinical histories and of keeping protocols, hears a certain number of general didactic lectures, attends amphitheater clinics which stimulate his interest, studies a good text-book, and is tested as to his progress by carefully conducted recitations. In the latter part of the third year he may profitably engage in the actual history-taking, physical examination and therapy of ambulatory patients in the policlinic.

Important as this propedeutic work is, it is overshadowed in benefits conferred by the medical work of the fourth year, when the undergraduate student is required actually to do an important part of the work in the stationary clinic. Here, as a clinical clerk, he has a certain number of beds assigned to him and is permitted to regard the patients occupying them as his patients, for whose study and care he is personally, in large degree, responsible.

[In the following section, which is here omitted for lack of space, the importance of teaching by the method of clinical-clerkships, introduced into this country by Dr. Osler, is entered on.]

Students and staff thus work together in the medical clinic as a harmonious group. The cases under examination are compared with similar cases in the literature. The spirit of thorough investigation is cultivated; each worker is encouraged to ask himself how the particular cases immediately in his care can be more completely analyzed and what problems they present suggestive of experimental or statistical inquiry. The treatment insticertain fundamental points: the desirability (1) of more thorough practical teaching and (2) of an increase in scientific productivity. How best to move toward the practical realization of these ideals is a question.

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[1] Taylor, F. W.: Scientific Management, N. Y. 1911; Gantt, H. L.: System, February, 1911; Cooke, M. L.: Bulletin of Carnegie Foundation, 1910.

A STATE OF FLUX

The clinical departments of the medical schools of the United States are on the eve, it would seem, of important reforms. To bring them about, radical changes may be necessary. Faculties will, doubtless, be led to experiment in various ways; only after trials through a considerable period shall we be able to decide on the arrangements and organization suitable for general adoption in the better schools. A state of flux, already evident in the clinical departments, is, therefore, likely to continue and to become even more pronounced during the next decade.

In medicine, which is, and must always be, the department of primacy in a medical school, and also in surgery the tendency to fill chairs by attracting able men from a distance has finally begun. It was formerly impossible on account of the absence of school-controlled hospitals. The medical faculties were compelled to accept as their clinical professors men who, developing locally, were the physicians to municipal or to privately endowed hospitals. In no other way could "clinical material" for the instruction of students be obtained. Now that universities are beginning to have their own hospitals, or to enter into arrangements with other hospitals through which their professors are assured directing places on the hospital staff, professors may be called from a distance, or be selected from the local profession, on account of their skill in diagnosis and therapy, their ability as teachers and their power as original investigators.

THE PRINCIPAL CLINICAL CHAIRS AND THE SPECIALTIES

The three principal clinical chairs in a medical school must always be those of medicine, surgery and obstetrics. A general training in each of these branches is absolutely essential in the education of every medical student.

In the specialties, there is time, in the brief period of the clinical curriculum, to teach the student only the most salient methods of diagnosis and treatment, those suited to the needs of the general practitioner.

[The proper relation of the specialties to the principal clinics is somewhat fully discussed. The importance of adequate special clinics for the postgraduate work is emphasized.]

THE HOSPITALS OF THE MEDICAL SCHOOLS AND THEIR MANAGEMENT

The most pressing need in the clinical departments of the medical schools of the United States, at present, is that of school-controlled hospitals in which the students may actively participate in the work of diagnosis and treatment and, under skilled direction, be held responsible therefor. In the hospitals, the conditions should permit of an adequate organization for the three great functions of a university clinic—practice, teaching, and research. These hospitals should be large enough to supply sufficient clinical material in internal medicine, surgery, obstetrics and in the principal specialties. The organization should ensure a large degree of departmental autonomy while providing for proper correlation of the activities of all the clinics.

It is only here and there in the United States that one finds belonging to a medical school (1) a hospital of sufficient size, equipped with teaching and working quarters, with wards situated in immediate contact with commodious clinical laboratories, (2) an organization according to which the professors of the clinical departments of the medical faculty are also the principal physicians and surgeons on the hospital staff, the whole control of the individual departments being in the hands of the respective professors. Until medical faculties obtain by endowment or agreement facilities of this sort, the clinical sciences must remain backward in their development.

[In the complete text the hospital situation is analyzed, the difficulties now existing pointed out, and measures for improvement advised.]

DEPARTMENTS OF INTERNAL MEDICINE

The functions of each of the clinical departments are manifold and complex. Let me refer to some of the activities of the branch about which I know most; namely, internal medicine. If one attempt to resolve the functional complexity of that branch into its component aspects one can distinguish, at once, at least four principal parts:

1. The practice of medicine in the public and private wards and in the out-patient department and the laboratories thereto pertaining, by which I mean the actual diagnosis and treatment of disease in the patients who enter the clinic.
2. The teaching in the wards, in the dispensaries and in the laboratories of (a) undergraduate medical students; (b) assistants and associates; (c) physicians taking postgraduate courses in the department.
3. The prosecution, by professors, assistants and postgraduate students, of original inquiries in internal medicine, the search for new methods of diagnosing and treating disease, the attempt to advance our knowledge of the subject beyond its present boundaries.
4. The administrative duties, including the admission, transfer and discharge of patients, interviews and correspondence with physicians who bring patients, and with the relatives and friends of the sick, the relations of the clinic to housekeeping and nursing, the maintenance of records and statistics, the arrangements for publications, the superintendence of budgets and expenditures, the making of appointments and promotions, the attendance on departmental and inter-departmental conferences, the formulation of curricula, the organization, equipment and running of the several clinical laboratories, the library, and the museum, the integration of departmental activities, the development of an *esprit de corps*, etc.

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[1] Taylor, F. W.: Scientific Management, N. Y. 1911; Gantt, H. L.: System, February, 1911; Cooke, M. L.: Bulletin of Carnegie Foundation, 1910.

In all this medical work, in both the third and the fourth years, it is essential that the students be divided into small groups and that each group be directly supervised by some member of the clinical staff. The immediate hourly supervision will, of necessity, devolve on the younger men on the staff, but a heavy burden also falls on the senior members of the department who must, themselves, keep in intimate touch with the students and junior staff—controlling, criticizing, reviewing, suggesting, encouraging. At least one full professor and two associate professors, whose function shall be predominantly teaching, are needed to plan and to conduct this work; in larger clinics it would be of advantage to have two full professors assigned to this function. In some of the schools, the teaching professors will also be the authors and revisers of text-books of medical practice.

[Continuing the description of the teaching in the clinic, the article deals with (1) the instruction given to the junior men on the staff, and (2) postgraduate courses in internal medicine.]

DISCOVERY IN INTERNAL MEDICINE

The third great function of the clinic of internal medicine is that of original investigation. It is a fortunate feature of clinical work, one doubtless that has had much to do with that steady progress in knowledge which throughout time the clinics have made, that even the routine work in a clinic is largely work of research. Each new patient is a problem for investigation; the clinician applies the methods he has learned and tries to solve it. The essentially inquisitive nature of the everyday work of the clinician has to be personally known to be fully appreciated. In addition to the ordinary routine of clinical work, physicians are constantly trying out new methods of examination and treatment that have been devised and recommended; this work, carefully done, the observation being accurately recorded and analyzed, affords material for statistical inquiry, the results of which are often of high importance to the profession. When a new method of determining clinically the size of the heart has been proposed, or an early diagnostic test for typhoid fever or for syphilis or for carcinoma of the stomach suggested, long experiential proving in the clinics must decide as to its value before it is accepted for general routine. A great clinic, scientifically controlled, can thus continually advance knowledge and help on the practical work of the profession.

It is, naturally, not the function of the clinic to do work in abstract anatomy, physiology or pathology. The aim and purpose of the clinic is on the contrary to continue the applications already made, and to make new applications, of the facts of anatomy, physiology, pathology, chemistry, etc., to the solution of problems in diagnosis and therapy suggested by patients who come to the clinic for help. Unless clinical men fully realize this point, unless they have a full consciousness of precisely what the clinic is for, they may be led astray by those who feel that "applied science" is very different from "science."[2] Clinicians are sure, now and again, to make certain contributions to pure physiology or pathology when trying to solve their own problems in diagnosis and therapy. They will be glad when their work so contributes, but this should not be the main aim and purpose of that work; as soon as a man in the clinic finds it to be so, it is time that he left the clinic and transplanted himself to a laboratory of physiology or pathology. Clinicians must jealously guard opinion in this matter; otherwise their sciences cannot progress.

[A section omitted here emphasizes the significance of an atmosphere of original research for students and staff.]

In the United States, the emphasis has been laid rather on the teaching of students; clinical research has been, until recently, less cultivated. This may explain the higher state of clinical science in Germany, on the one hand, and the better physicians trained by the good schools in the United States on the other. Germany ought to reorganize its clinical teaching so as to make better doctors[3]; in the United States we should set about increasing the scientific productivity of the clinics. . . .

In order that clinical research may make more rapid advance, and the sciences of diagnosis and therapy be furthered, the experimental method should be more extensively employed. Owing to the peculiar conditions which have prevailed in the clinics up to now, only a few men, either in Germany or the United States, have had the time, interest, training and independent income which have permitted them to do extensive original work by experimental methods in laboratories directly attached to the clinics. Recently, however, more of this work has been done. It has been very welcome, and the time has come when it would seem desirable to make this kind of research more systematic and purposeful, less casual and accidental.

[Dr. Barker lays stress on the establishment, in addition to teaching and diagnostic laboratories of several special research laboratories in the medical clinic (biochemical, serologic, physiologic and psychopathologic), directed by well-paid scientific men.]

It would be short-sighted of internal medicine to neglect these powerful engines of exploration and enrichment. The other departments of applied science have set us the example. Technology has demonstrated the efficacy of paid research work for the promotion of the industrial arts (metallurgy, brewing, electrical engineering, sugar refining, food preservation, the manufacture of arms and ammunition, etc.). It would be a distinct advantage if at least one liberally endowed full professorship were provided in the clinic of internal medicine, in which a man of original ideas, thoroughly trained in methods of research, could, undistracted by administrative work, by private or hospital practice, or by undergraduate teaching, devote his whole time and energies to it. A mind full of heuristic hypotheses, a curiosity which compels the accurate testing of them, a body inured to intense and confining work, the privilege of continuous, uninterrupted application to laboratory studies, a guarantee of financial independence, liberal support in the form of equipment, facilities for experimentation, assistants and mechanical aids, and the entire sympathy and cooperation of those who attend to the major part of the practice and the teaching of undergraduates in the clinic would be necessary to make the venture fruitful. Assume the existence of such conditions in our departments of internal medicine, and find for the research professorships men of the type of Louis Pasteur, Robert Koch, Paul Ehrlich, or Simon Flexner—what dare we not expect in the way of extension of diagnostic recognitions and of means of cure?

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[2] A mathematician sometimes feels that his work is more scientific than the work of the chemist or physicist; the latter, in turn, is too prone to regard the biologist or physiologist as an unfortunate worker in applied science, and to speak with some contempt of the efforts with complex and mixed substances made by the biologic chemist, or the immunologist; the physiologist and the pathologist again only too often fail to attribute scientific value to the efforts at application of the facts of their subjects made by clinicians. There will always be, I fear, this misunderstanding of the applied sciences by the sciences basal to them.

[3] An effort in this direction, recently made in Germany, may be seen in the "hospital year" now required at the end of the medical course there. It appears to correspond to our hospital internship, made compulsory.

And what an opportunity such an arrangement would offer for postgraduate study! A few advanced scholars, desiring to widen the science of internal medicine, could cooperate with such a research-professor in the "master work-shop," and, according to their ability, experience the wonderful joy of creative work. One who has once been permitted so to participate will never forget it. Many regard this last and highest phase of personal education as the acme of their inner experience.[4]

Despite the unfavorable conditions now existing in the clinical departments, strong men have been attracted to them. All things considered, patients are being very well cared for, good physicians are being trained, a very fair amount of original work has been produced. The bibliographic output, including text-books, handbooks and publications of original research, compares favorably with that of any one of the laboratory subjects. As to foreign recognition, it has been fully as great for the clinical chairs, if not greater, than for the non-clinical departments. Many foreign clinicians have visited American clinics and most of the foreign students who have come to this country to work have entered clinical rather than non-clinical departments. Several clinical text-books have been and are being translated into other languages.

THE MOVEMENTS TOWARD REFORM

The tedium of this long description of the functions of a medical clinic would scarcely be justifiable were it not for my desire clearly to establish a fact of importance, namely, the growth of the functions of the clinic to a size and complexity no longer compatible with the form of its present organization.

Hitherto there has been only one professor at the head of a clinical branch, and he has been supposed to engage in, care for and control all these varying activities and, in addition, to make the major part of his income in practice outside the hospital, only a few institutions, thus far, having been able to pay salaries which would defray even a portion of the cost of the clinician's living. Surely the superhuman has been expected!

We have now briefly to consider how the clinics can best be organized to meet modern requirements, and I shall again refer chiefly to the medical clinic, assuming that a plan which will suit its exigencies may, with certain modifications, be applicable to the other clinics.

[Methods of reorganization and reform, based on a functional division of labor, are next suggested.]

Those who devote themselves chiefly to the care of patients in the clinic need not be men who do a great deal of teaching and investigation. Those who are mainly responsible for the teaching in the undergraduate school should not be burdened with the care of too many patients and would of necessity have to limit the time given to investigation. Those, in turn, who give their time and energies almost wholly to research should be protected, as far as possible, from the teaching of undergraduate medicine and from the care of practice and administration.

Here, then, we have in mind a clean-cut conception of an ideal of organization toward which we may strive. What is now a single professorship could be replaced by a cooperative committee of professors in charge of a large and differential staff.

[The section omitted here deals with the "headship" of the department and the cooperation of the staff.]

In an address delivered some years ago, entitled "Medicine and the Universities,"[5] I made some suggestions regarding the clinical branches; even then, though I was engaged entirely in laboratory work, it seemed to me that the clinics were under-manned and that the work in them was insufficiently differentiated. In that address it was intimated that the time might come when, in the clinical branches, we should have at least two kinds of professors: (1) Professors on a so-called "university basis," paid salaries large enough to enable them to devote their whole time and energy to teaching or investigation, without engaging in private practice; and (2) professors who give a part of their time to the care of patients in the hospital, to teaching or to investigation, and who, though paid smaller salaries, obtain their income chiefly from the fees of private patients, preferably from consultative or operative work. The ideas there set forth, in the main, still hold good, though it is doubtful if they can be applied in precisely the manner I then suggested. Though the clinic then seemed complex, I know, to-day, even more of its intricacies and difficulties, and the problem looks less simple in solution at close range than it did at a distance.

Were a new medical school to be started, with liberal endowment, it would be an interesting experiment to try an organization in which a functional division of labor, such as I have outlined, is provided for and in which some of the professors, especially those devoting themselves almost entirely to research, will be paid sufficient salaries to permit them to escape from practice.

It has hitherto been taken for granted that the professor of medicine in the medical school will engage in medical practice and that the professor of surgery will have his private patients, each reaping the financial rewards attending on such work. The prominence of such men and their unusual training and opportunities have made them, as a rule, much-sought consultants rather than general practitioners, though many of them naturally began with general private practice in their respective branches, and, as their work grew, limited it, later, to consultative or operative practice. Only rarely have the occupants of clinical chairs been paid living salaries.

[An omitted paragraph comments on the public demands made on clinical professors and the question of the substitution of salaried public medical service for private enterprise.]

In our reorganized medical schools it does not seem to me probable that it will be desirable soon, if ever, to have all the men of the faculty composed of non-practitioners. It would seem distinctly advantageous to have at least some of the teachers of undergraduates and some of the men who care for the patients in the hospital also engaged in private practice, at least in consultative or in operative work.

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[4] Cf. Ostwald, W.: Die Umschau, January, 1911.

[5] American Medicine, Phila., 1904.

In all attempts at reconstruction our efforts should, at first, be tentative. It would be a mistake to start with any cut-and-finished garment that we should ask the medical schools immediately to don. Though having the essentials of our ideals in mind, the proper method of attaining to them and the proper expedients would have to be slowly established. At an early stage of reform, anything like extreme measures should be sedulously avoided. In making profound changes the process of transition must not be flatly ignored. The ideal clinic can scarcely be attained by proclamation. The obstacles in the way of progress must be carefully measured and we must keep in mind the cardinal fact that "all true development and progress are out of and because of what has gone before."

It is among the inconveniences attending all important reforms that the disciple overstates the teacher, exaggerates some features of his doctrine and is oblivious to, or insufficiently appreciative of, others. There is always danger of confusing novelty with originality and alteration with progress. Because we desire research is no reason for doing away with teaching and practice in the clinic. Nor would, in my opinion, the limitation of every professor in a university to the material rewards of an insufficiently salaried position prove a panacea or a magic "open sesame" to the medical millennium.

Some enthusiasts urge the summary dismissal of the clinical professors now active and the substitution of non-practicing men. Even if this were advantageous for all the chairs, as some erroneously think, it would be difficult to apply such an organization abruptly in the schools already established. Men who now occupy the clinical chairs and who have of necessity ordered their lives for the double function of professorships, on the one hand, and of consultative or operative work, on the other, have become so involved in obligations that they could not suddenly change to a salaried basis without great hardship to themselves and their families, and loud complaints from the public.

[The cost of living of the clinical professor is the topic of an omitted section.]

Hitherto there have been no endowed clinical professorships and should they be established, men would have to be trained especially for them. For this reason alone, the change could not be promptly brought about; and besides, any extreme and harsh measure like compulsory expropriation of the chairs might do damage inasmuch as anything that makes the tenure of university professorships insecure injures the universities.

It must be kept definitely in mind that the majority of the present incumbents of clinical chairs hold them in good faith; that they do their best in the conditions that now exist; that they, as much as any group, desire to see the clinical subjects advanced, to have the patients better cared for, to improve the teaching, and to augment the scientific output. The rightfulness of the kind of work the clinical men are doing has always been taken for granted. It may be a mistake for our medical schools to continue to have all clinical professorships as they have been; it may become educationally advantageous radically to alter the vast tradition of relationships in which clinical teachers now live. If so, the change can doubtless be brought about in an orderly and reasonable manner, and no ingratitude should be shown to those who up to now have tried to hold the torch aloft under unfavorable conditions. Above all, all honest, earnest, hard-working men should be protected from the zeal and overstatements of headlong advocates who insinuate the absence of ideals among clinical men, or talk of graft, rascality, commercialism and the exploitation of the clinical chairs for private profit.

The reconstruction in the clinical departments, when it is undertaken, ought, therefore, to be a sane and gradual process, a process of careful readjustment to changing conditions, going only as fast as men can be suitably trained and academic opinion correspondingly educated. Carried on in such a way, the reforms will be welcomed and hastened by every progressive, right-thinking clinician. Our better physicians and surgeons are broad-minded men; they are by no means devoid of the quality of self-abnegation nor of the spirit of public service; on the contrary, they are entirely capable of assuming their fair share of renunciations when conditions demand them, and of making personal sacrifices for the general good. Convince such men of the evil which exists and they will be no antagonists to the forces of reform, but, on the contrary, willing leaders of those who try to root the evil out.

After provision has been made for school-controlled hospitals, in which students may live and work, we must find places for the different kinds of clinical men —practitioners, teachers, investigators. There is room for all three types, and all three kinds of work are desirable and honorable. We have a homely saw to the effect that square pegs should not be put into round holes, an adage which finds its more polished equivalent in the Greek "Character is Fate." In every branch in a medical school students should come into contact with the stimulating investigator who is ever pushing forward the boundaries of knowledge; he should learn the main facts that have already been discovered from a teacher who knows how to collect them and to transmit them to others, and he should have the opportunity of watching the example of practitioners who come into contact with all sorts of patients and all sorts of doctors, who are acquainted with the great variety of clinical puzzles which are presented to the consultant for solution and who learn the virtues and defects of the men now engaged in medical practice in different parts of the country.

After giving these matters much consideration, there is one suggestion that I should like to offer as an immediate means of magnifying the scientific productivity of our clinics and of training men for leadership in them. Provide endowment for the maintenance, in each clinic, of a group of young scientists of proved ability and capacity for development, and relieve these men of most of the routine work of teaching and the care of patients, that they may have leisure for investigative work in the wards and clinical laboratories. A suggested scale of remuneration for such men might be an initial salary of $800 or $1,000 per year and living in the hospital, with a yearly increase of $200 or more for the next ten years. These men, so kept at work during their most productive years—usually between the ages of 25 and 45—would rapidly increase the scientific output of the clinics, and would speedily form a group of scientific men in the clinical branches from among whom, later on, professors in medical schools and investigators in research institutes could satisfactorily be chosen. Appointed to professorships, men so selected would not need to be hedged about by too great restrictions; their training in scientific methods and ideals would have been such that they could not quickly be spoiled. There should then be no attempt to interfere with the full play of their individualities; their positions should be made as unhampered as possible; they would of themselves chip away "the spendthrift liberties that waste liberty," and devotedly give their time and energies to the advancement of the subjects they represented. Their appointments as professors might automatically cease at the end of a given term of years, or when a certain age limit had been reached.

This occasion does not, of course, permit of any full discussion of the points I have raised. Perhaps I have said enough to call some of the interests to mind and to assure you that the men connected with the medical schools in the United States, like those in Canada, are doing all they can to elevate standards and to improve conditions in that noblest of all professions—medicine.

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ANATOMIC CONDITIONS BEARING ON THE RELATION BETWEEN DISEASES OF THE EYE AND DISEASES OF ACCESSORY SINUSES *

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The eye and the nasal accessory sinuses are intimately related; in fact, the bony walls of the orbit are formed chiefly by the walls of the sinuses. The upper wall is formed largely by the floor of the frontal sinus, while the inner wall is formed principally by the lateral wall of the ethmoid cells, and the floor of the orbit by the roof of the maxillary sinus.

The bony walls are very thin, varying from 1 to 12 mm. in thickness. Aside from being at times of tissue-paper thinness, they may be defective; that is, they may have dehiscences. These dehiscences allow the mucous membrane of the sinuses to come in direct contact with the orbital tissues or the optic nerve. The dehiscences may be due to senile atrophy or to formative anomalies. Zuckerkandel reports fourteen and Onodi eighteen cases of congenital dehiscences of the paper plate of the ethmoid. These openings varied from 4 to 28 mm. in the sagittal and from 4 to 8 mm. in the vertical diameter. Merlin reports one case in which a dehiscence of the paper plate of the ethmoid connected the ethmoid cells with the orbit, frontal, and sphenoid sinuses. Onodi also observed three cases in which the frontal sinus communicated directly with the ethmoid cells and orbital cavity. Zuckerkandel reports four cases in which dehiscences of the sphenoid sinuses were connected by congenital dehiscences of the lateral wall of the ethmoid sinus; all four cases showed dehiscences of the orbital wall of the sphenoid.

In addition to those already mentioned, dehiscences of the frontal sinus occur frequently in the form of small openings, which are in part circular and part lineal. These little openings, Helly designates as "venenlocher." Kuhnt has shown that two of these small vessel openings, one of which is just at the inner orbital angle, and the other just behind the incisura orbitalis, are the usual routes for the passage of infectious material from the frontal sinus to the orbital cavity; another point of predilection in cases in which the frontal sinuses are large is at the junction of the middle and lateral portion of the orbital plate of the frontal. Onodi lays special stress on a defect which occurs in the ethmoid canal. The canal extends from the anterior ethmoidal foramen on the wall of an orbital cell or frontal sinus, to the anterior cerebral fossa. In this canal lie the anterior ethmoidal artery vein and nerve. He has shown that this canal at times consists only of a groove or semi-canal, with its vessels and nerves covered only by the mucous membrane of the sinus or orbital cell, bringing the mucous membrane in direct contact with the orbital tissues at one end and the dura mater at the other. Since a diseased process in the frontal sinus can easily extend by direct continuity of tissue to the orbit or dura, the importance of this canal at once becomes apparent.

Merlin and Zuckerkandel also report having observed dehiscences in the inferior orbital wall, thus bringing the periorbita and periosteum of the maxillary sinus in direct contact. The dehiscences in the paper plate of the ethmoid explain the occurrence of orbital emphysema, which results from sneezing or violently "blowing the nose" in otherwise normal individuals.

If these dehiscences are present when there is an existing suppuration, very little resistance is offered in preventing an extension into the orbit, as the periosteum of the sinus walls, as well as that of the orbital cavity, is not only very thin, but very poorly nourished.

The relation of the venous circulation of the sinuses to that of the orbit is most important. The anterior facial vein has its origin in the angular vein and anastomosis with the nasofrontal vein. The superior ophthalmic vein, commencing anteriorly in this nasofrontal vein, enters the orbit and passes outward above the optic nerve through the orbital fissure into the cavernous sinus. During its course through the orbit it receives, according to Birsch-Hirschfeld: (1) a vein from the lacrimal gland, (2) a vein from the frontal sinus, (3) a vein from the antrum of Highmore, (4) a communication from the inferior ophthalmic, (5) a communicating vein with the vein that anastomosis the angular with the cavernous sinus, (6) anterior and posterior ethmoidal veins, (7) muscle veins, (8) lacrimal vein, (9) central vein of the retina.

Through the ethmoidal veins and the nasofrontal vein, and the above mentioned branches of the superior ophthalmic, which communicate with the veins of the frontal and maxillary sinus, a thrombophlebitis may readily extend from the sinuses to the orbit or dura. Kuhnt reports three cases of embolism of the central vein of the retina from maxillary sinus empyema. According to Onodi, the venous plexus of the maxillary sinus bears a relation to a branch which bores its way through the sphenoid sinus wall. The veins of the sphenoid sinus may stand in direct relation to the ophthalmic plexus and cavernous sinus.

The arterial connection between the orbit and the sinuses is of much less importance. The posterior ethmoid is a branch of the ophthalmic and ramifies in the ethmoid cells. The anterior ethmoidal, also a branch, in its passage through the ethmoidal canal or semi canal, as before mentioned, may in connection with its vein, be of considerable importance as a route of infection from the frontal sinus to the orbit.

There seems to be very little exact knowledge regarding the lymphatics of the orbit. The presence of lymphatic vessels in the orbit is questioned by some. Birsch-Hirschfeld was able to demonstrate the presence of lymphatic spaces with well defined endothelial linings, in the adipose tissue, between the muscles, in the lacrimal gland, in the region of the optic nerve and in the periosteum. The larger spaces were in the neighborhood of

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the larger vessels. He was, however, unable to demonstrate the direction of the lymph flow. Regarding the relation of the lymphatics of the orbit to the lymphatics of the nose, Birsch-Hirschfeld quotes Herman, who states that the lymphatics of the nose, with those of the face and the nasolacrimal duct, are in communication with those of the orbit. The post-mortem findings in the cases reported by Pagenstecker and Hajek, in which meningitis resulted from frontal and ethmoidal suppurations, no bone involvement was found, from which these authors concluded that the infection may have traveled by way of the lymphatics. It, therefore, seems probable that the orbit could likewise become infected through the lymphatic channels in connection with diseases of the nose and accessory sinuses.

The sphenoid cavity does not, as a rule, come in relation with the orbit, but its thin and often defective walls may be in relation above with the optic chiasm, sinus intercavernosi, the optic nerves, and laterally on each side with the cavernous sinuses, the communicating vein between the superior and inferior ophthalmic veins, and at times the central vein of the retina.

The proximity of the optic nerve to the sphenoid sinus and posterior ethmoid cells has been carefully worked out by a number of authors, viz., Berger, Tyrman, Hajek, Killian, Avellis, Onodi, Loeb and others. Their anatomic studies have shown that there are a great many variations in the relation between the sphenoid, the posterior ethmoid cells, orbit and optic nerve. Onodi was the first to show that the last posterior ethmoid cell is at times in relation to the optic nerve. Up to that time the contiguity to the sphenoid sinus alone was mentioned. Berger and Tyrman first called attention to the fact that the sphenoid sinus is not always in relation to the optic nerve. The bone between the sinus and the nerve may reach a thickness of 12 mm. This explains why in an extensive disease of the sinus, the nerve may not be involved. In Onodi's studies of the various relations existing between the sphenoid and posterior ethmoid and the optic nerve, he found, among others, the following of importance: the left posterior ethmoid cell may constitute the medial wall of the right optic canal. The right posterior ethmoid may constitute the inferior wall of the optic canal on both sides, and the wall of the entire optic sulcus. The left sphenoid sinus may constitute the inferior wall of the right optic canal. The right sphenoid sinus may border medially only on the left optic nerve. The left sphenoid sinus may constitute the inferior wall of the right optic canal and the wall of the right third and middle third of the optic sulcus. The left sphenoid sinus may constitute the inferior and medial wall of the optic canal on both sides and the wall of the entire optic sulcus. The left sphenoid sinus may also constitute the inferior and medial wall of the left optic canal and the inferior wall of the right optic canal, also the wall of the entire optic sulcus.

Onodi has further shown that when the posterior ethmoid cell is in relation with the optic nerve, the bony wall between them is usually very thin. He also illustrates two cases in his atlas which are highly instructive. In one the optic canal comes through a posterior ethmoid cell for a distance of 12 mm. In the other, the optic canal lies free in the sphenoid for a distance of 10 mm. The intimate relation of the optic nerve and the ethmoid and sphenoid sinuses not only shows the great liability to blindness in diseased conditions of these cavities, but also the danger of wounding the nerve in operative procedures in these cavities. Loeb lays stress on the position of the opening of the sphenoid cavity. He points out that the higher the opening of the sphenoid, the closer the stagnant pus comes in contact with the nerve, therefore the increased likelihood of nerve involvement. He has shown that in some instances the opening of the sphenoid cavity is on a level with, or even above the optic nerve.

The anterior ethmoid cells are not, as a rule, in relation to the optic nerve, but may be when they are large enough to replace a posterior ethmoid cell.

The frontal sinus may be in relation with the optic nerve, in those cases where the cavity representing the ethmoid merges with the frontal and the wall of their common cavity constitutes the medial wall of the optic canal, as occurred in a case described by Onodi.

These various relations which the optic nerve may bear to the nasal accessory sinuses explains the occurrence of involvement of the nerve on both sides in diseases of the sinus on one side, or even involvement of the nerve on the opposite side.

The fifth cranial nerve in its passage along the outer wall of the sphenoid sinus may be involved in sphenoid disease. Thus Posey and Ellinger have reported corneal affections as a result of the fifth nerve involvement, due to sphenoid disease. The sixth nerve, in its passage through a groove in the sphenoid, is often separated from the sphenoid sinus by a very thin wall. This nerve supplies the external rectus. A paralysis of the muscle is frequently concomitant with an acute rhinitis. Holmes maintains that the paresis cannot be explained, except as a result of disease of the sphenoid.

EYE COMPLICATIONS ARISING FROM DISEASES OF THE NASAL ACCESSORY SINUSES *

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In presenting the subject of eye complications resulting from diseases of the nasal accessory cavities, there is much that has been said so often that it seems unnecessary to repeat it. It will be my purpose briefly to call attention to a few points which are generally recognized, and to emphasize certain obscure relations in the hope that we may be encouraged to make more careful observations and draw more accurate conclusions.

The relation between purulent accessory sinus disease and orbital cellulitis has long been recognized. As in mastoid disease we may have extensions from the mastoid through the bony walls by necrosis of bone, by the venous channels, by the lymphatics, and apparently by migration of the infection from one part to another contiguous part, so in purulent disease of the nasal cavities we may have extension to the orbit by any of the processes mentioned. Orbital cellulitis is characterized by pain, swelling, usually proptosis, redness and elevation of temperature. The symptoms vary according to the location and virulency of the infection. A cellulitis may subside without abscess formation, or an abscess may form near the orbital wall, and break into and drain through the accessory cavity from which the infection came. In the severer types there is severe pain, enormous swelling, chemosis of the conjunctiva, and sometimes cerebral symptoms such as headache, drowsiness, vomiting and disturbances of the pulse and respiration.

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The sight is impaired by displacement of the eye-ball and by stretching of the optic nerve. It may be lost entirely by involvement of the optic nerve. Detachment of the retina and panophthalmitis are occasional results.

The additional causes of orbital cellulitis, as given by Fuchs, are injuries, erysipelas, metastases in pyemia, typhus, scarlet fever, small-pox and purulent meningitis. Of all the causes, accessory sinus disease is undoubtedly the most common. The difficulty in getting at the cause of this trouble, as of many other lesions about the eye, is that those who see most of these cases are not able to correctly diagnose obscure nasal conditions. The diagnosis of orbital cellulitis is usually easy, but to determine whether of nasal origin or whether due to something else is sometimes difficult even for those accustomed to nose work. Transillumination of the frontal and maxillary sinuses, while not giving positive information, is of value. Inspection of the nasal chambers after shrinking the soft parts with cocain and some suprarenal product will frequently show discharge coming from or lying in the neighborhood of the ostia. The probe should be used, and in doubtful cases the diagnosis can be cleared up by direct exploration of the cavities.

TREATMENT

The subject of treatment naturally falls under four heads:

1. Preventive treatment by attention to pre-existing nasal conditions.
2. Nasal treatment during the attack.
3. Palliative treatment.
4. Surgical treatment.

The first two divisions—the preventive and the nasal treatment during the attack—apply to all diseases of the eye of nasal origin, but the discussion of them does not properly belong to this paper. The palliative treatment consists of anodynes when necessary, hot applications to the eye and general treatment such as is applicable to all acute inflammatory conditions. The detection of pus in the orbit is a positive indication for incision, but without fluctuation it is proper to make one or more deep incisions into the orbit whenever the swelling or the proptosis seems to have reached the danger-point. The pressure is thus relieved and the abscess can sometimes be found and drained when the external indications of pus are lacking. The position and direction of the eye-ball may help to locate the abscess. An abscess in the upper part crowds the globe forward and downward. Induration in the upper part of the orbit is likely to direct the eye downward, while an abscess, by pressure on the superior rectus muscle, may direct the eye upward. The same rule applies to abscess in other parts of the orbit.

Diseases of the lacrimal apparatus may result from extension of pathogenic microorganisms from the nasal cavity or from closure of the nasolacrimal duct by swelling of the soft tissue in the inferior meatus. The percentage of cases of lacrimal disease of nasal origin has been variously estimated, some believing that fully 50 per cent. are due to pathologic conditions in the nose. Others do not consider the nose as a possible etiologic factor. It is impossible to determine accurately the percentage since the patients are usually not seen until the conditions are well developed and then the pathology found about the nasal opening of the lacrimal duct may be the result rather than the cause of lacrimal disease. It seems sufficient for the purpose of this paper to say that in all cases of dacryocystitis, lacrimal abscess and epiphora, the nose, especially the accessory cavities, as a possible cause should be thoroughly investigated.

Diseases of the conjunctival sac and cornea of nasal origin may be due to invasion of microorganisms coming up through the lacrimal apparatus. Gradle believed the percentage of these cases to be very large. The reflex relationship existing between the conjunctiva and the nose can be easily demonstrated by irritating the tissues about the front end of the middle turbinate with a little cotton on an applicator. The conjunctiva becomes injected and in most cases lacrimation is increased. The same change is frequently seen after mechanical irritation of the accessory cavities although it is not so easy to demonstrate experimentally. In one of my patients, while the right sphenoid sinus was being explored, the conjunctiva of the right eye became congested, the redness, with some impairment of vision, lasting several days. It disappeared, however, without treatment, but occurred again several times after nasal manipulation. The etiologic relation existing between a conjunctival disturbance in a given case and disease of an accessory cavity is not easy to demonstrate positively. There is always the possibility of two or more simultaneous disturbances with different and independent causes, but from the way in which some of the conjunctival diseases clear up after treatment of an associated nasal accessory sinus disease the etiologic relation can be fairly assumed.

Muscular imbalance is believed by some to be very largely of nasal origin. Considering the thinness of the wall between the attachment of the rectus muscles and the sphenoid cavity and ethmoid cells, it does not require any great stretch of imagination to believe that disease of these cavities may impair the function of the muscles. The result of treatment of accessory sinus disease in the presence of muscular imbalance further goes to show that there is an intimate relation between the two conditions.

The muscular defect most commonly due to ethmoid disease is esophoria for distant vision with exophoria for close vision. The inflammation about the insertion of the internal rectus at the optic foramen seems to produce some contraction of the muscle thus drawing the eye nasalward from its normal position for distant vision, while the contractility is impaired, thus preventing the eye from turning inward sufficiently for normal, easy, binocular vision for close objects. It seems not improbable that the cases of headache caused by use of the eyes for close work, which have not been relieved by glasses and have been relieved by treatment of diseased ethmoid cells, are really cases of muscular asthenopia.

The pathologic relation between the accessory cavities and intra-ocular disease is not well understood. That such a relation exists is even doubted by some. The cases of iritis, choroiditis and retinitis associated with suppurative disease of the cavities are too frequent for the relation to be considered merely coincidental. I have seen some cases of recurring iritis giving a rheumatic history in which I found accessory sinus disease. It is a question not yet settled in my mind whether the iritis was of rheumatic origin or whether the iritis and the rheumatism may not have both been due to infection from the nasal cavities.

There are a number of ways in which disease in the nasal cavities may affect the intra-ocular structures: (1) through the venous channels; (2) through the arterial supply; (3) through the sensory and motor nerve-supply; (4) through the sympathetic nerves; (5) probably by general absorption of infectious material. Which has been the method in any given case I have not been able to determine; nor have I been able to find in the literature theories advanced which seemed to satisfactorily fit my cases.

In closing let me say that while we have not always been able to point out the channel of infection or the method by which the nasal cavity disease influenced the eye, still ophthalmology owes an enormous debt of gratitude to rhinology, and one of my deep regrets—and in this I know that I voice the sentiments of a multitude—is that in my eye work I have not more thoroughly investigated intranasal conditions.

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OPERATIVE TREATMENT OF SUPPURATIVE SINUS DISEASES PRODUCING ORBITAL COMPLICATIONS *

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In 1899 I read a paper before this Association on the accessory sinuses in relation to diseases of the eye. This was probably the first paper on this intricate subject at a joint meeting between the rhinologists and ophthalmologists in America. This subject did not seem to excite much interest on the part of the ophthalmologists at the time; indeed, it is only within the last five or six years that both ophthalmologists and rhinologists have awakened to the fact that the diseases of the accessory sinuses have a most important relation to the orbit and its contents. It is only by a cordial cooperation on the part of ophthalmologists and rhinologists that we are able to arrive at a correct appreciation of the effects of diseased sinuses on the eye, in order that the proper surgical procedures can be adopted to relieve this organ of the many obscure symptoms produced by inflammation in the cavities surrounding the orbit.

In discussing the surgical treatment of diseases of the accessory sinuses producing orbital complications, it is necessary to appreciate thoroughly the intimate relations which these sinuses bear to the walls of the orbit. With so close an anatomic relation between these cavities, it is not difficult to understand why the contents of the orbit should so often be affected by pathologic conditions arising in the sinuses, either from pressure on the walls common to both cavities, from an involvement of the walls in the pathologic process, or by the carrying of septic material through the intercommunication of the veins of the nasal and accessory sinuses with those of the orbital cavity. The sinuses most frequently causing orbital complications are the frontal, ethmoidal and sphenoidal. Disease of the maxillary sinus very rarely acts as a causative factor in the disturbances of the eye, and the disease most frequently met with is the suppurative inflammation.

Among the orbital complications which we are frequently confronted with when the sinuses are abscessed, may be mentioned neuralgia referred to the eye and the supra-orbital nerve; secondary changes in the orbit brought about by mechanical pressure resulting in a change of form in the orbit, in a displacement of the eye-ball with a disturbance of its mobility and function, and in an interference with the flow of the tears; disturbances in the function of the eye, such as dilatation of the pupil and congestion of the papilla, and surcharging of the retinal vessels; narrowing of the field of vision, especially for colors, scotomata, and in severer cases, amblyopia or amaurosis; changes in refraction, abscess of the orbit, lacrimation, exophthalmos, strabismus, mechanical diplopia, mechanical edema with stretching of the upper lid, and retrobulbar neuritis. These symptoms depend on the cavities involved, and the character and intensity of the inflammation existing in them.

After taking into consideration the subjective and objective symptoms, and subjecting the patient to both an ophthalmoscopic and an *x*-ray examination, we are generally able to establish a diagnosis and to determine which cavity or cavities are to be operated on.

INTRANASAL METHODS

The operative treatment may be divided into the intranasal and the external or more radical method. The intranasal method is applicable especially to diseases of the ethmoid cells, and sphenoid cavity. It consists, first, in removing all obstructions, such as polypi and obstructing spurs, and the complete removal of the middle turbinate. This should be done by means of curved scissors or the Luc forceps, under cocain anesthesia. Unless the case is urgent it is better to pack the nasal cavity with gauze until all danger of hemorrhage has passed, which is generally two or three days. We are now in a position to determine the extent of the diseased area in the ethmoid cells. The ethmoid cells are now opened with a rectangular knife similar to one devised by Hajek, and removed by means of a sharp curet or a conchotome. In many cases, if the disease is not too extensive, we are able to remove the affected area, and in this way relieve the pressure on the eye. Ballenger advises the removal of the ethmoid cells and the middle turbinal *en masse*, by means of a knife which he has devised for this purpose. I personally have had no experience with this operation, but he speaks enthusiastically of his method, and, if it is in skilful hands, I can appreciate the great advantages he claims for it.

The sphenoidal sinus can in many cases be approached through the same route after the removal of the middle turbinate, which exposes the anterior wall of the sinus and often brings into view its ostium. A probe passed through this opening is sufficient often times to reveal a diseased condition of the sinus. This opening is rarely large enough to pass an instrument of any size into it; but by means of a small curet it can be enlarged sufficiently to admit a conchotome bent at various angles. Biting upward and downward, nearly the whole of the anterior wall can be removed in a normal sinus. I have in this way opened a large number of abscesses of the sphenoidal sinus and relieved severe pressure on the posterior part of the eye. The tendency, however, is for the opening, no matter how large, to be closed over by a membranous formation requiring frequent removal. Curetting this cavity should be very cautiously done, owing to the danger of injury to the optic nerve or internal carotid artery.

Owing to the irregularities in the sphenoidal sinus, it is not always possible to relieve abscesses in this cavity by the intranasal method. In several instances I have found this cavity to extend outwardly and at the same time dip toward the pterygoid process, and in a preparation which I showed at a meeting of the American Laryngological Association several years ago, it was found to extend some distance down into the internal wing of the pterygoid process. In these cases I have been able to relieve abscesses of the sphenoidal sinus producing eye symptoms, by combining the endonasal method with the antral route. The maxillary sinus is opened through the canine fossa, and then with a gouge and sharp curet the sphenoidal cavity can be entered at its most dependent part, and free drainage established. The frontal sinus can in some instances be opened by the endonasal route after the removal of the middle turbinate and the anterior ethmoidal cells. With a curet, an opening sufficiently large to admit the passage of a cannula can be reamed out, and the cavity washed out daily with a saturated solution of boric acid. If the case is not of long standing this method is sometimes effective. Ingals has practiced this method of late, and uses an electric burr, through which a probe is passed into the sinus as a guide; in his hands, it has been successful. This method, however, is unsatisfactory and dangerous, and can be applicable only to those cases of short duration, in which the cavity is small and not filled with granulation tissue.

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* Read in the Section on Laryngology, Otology and Rhinology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

EXTERNAL OR RADICAL METHODS

If the intranasal methods fail to relieve the diseased process, then the more radical procedure must be resorted to and the cavity opened from the outside. Within recent years there has been a very marked change in the external operation on the sinuses. In the beginning of my work on these cavities I practiced the Ogston-Luc method, or some modification of it, of opening the frontal sinus exclusively; but owing to several recurrences requiring secondary operations, I abandoned this method and left the frontal wound open and allowed the cavity to fill with granulation tissue. This was a slow and very tedious procedure, but as far as the cure of the frontal sinus disease is concerned, it has been most satisfactory; no recurrences have occurred in any of my patients treated in this way.

From the cosmetic side the results are excellent; in the majority of the cases there has not been the slightest deformity resulting. As far as the cure of the frontal sinus disease is concerned, this method is satisfactory, but it failed to give relief in cases complicated by disease of the ethmoid cells presenting orbital complications, especially in those cases in which the diseased process was located in the anterior and posterior ethmoidal cells and sphenoidal sinus.

Owing to the uncertainty of the above methods in completely relieving all the diseased conditions in the frontal, ethmoidal and sphenoidal sinuses, it is best to adopt the more radical operation proposed by Killian, which in the case of the frontal sinus, has for its purpose a complete removal of all the diseased process, and an obliteration of the cavity, and in the ethmoidal labyrinth a complete removal of all the ethmoidal cells as far back as the sphenoid. The anterior or external route for removal of the ethmoid cells is by far the most radical and satisfactory method we have of reaching suppurative conditions of this bone.

TECHNIC OF THE ANTERIOR OPERATION FOR REMOVAL OF THE ETHMOID CELLS

In this operation, the middle turbinate having been previously removed under cocain, the nasal chamber is packed with cotton plugs as advised by Killian in his operation. The incision is then made, commencing at the inner end of the eyebrow and is carried down along the outer edge and to the full extent of the nasal bone. The periosteum is now incised down to the bone, then stripped from the outer half of the nasal bone and from the whole of the nasal process of the superior maxilla.

The next step in the operation is lifting the lacrimal sac from its bed and detaching the periosteum from the inner wall of the orbit. Great care has to be exercised so as not to tear the sac and cause future trouble. Then with a sharp chisel the outer half of the nasal bone and the whole of the nasal process of the superior maxilla are removed down to the level of the lacrimal groove. This exposes the lacrimal bone and the anterior half of the os planum, which can be opened by means of a small chisel and removed with small bone forceps. This exposes the anterior ethmoidal labyrinth, when with bone forceps, we can with ease, working from before backward, remove completely the whole of the ethmoidal cells, back to the sphenoidal sinus. The plugs are now removed from the nose and the edges of the wound are carefully brought together and sutured, some preferring fine wire; but I believe better cosmetic results are obtained if interrupted sutures of very fine silk are used The incision is protected with either a collodion and iodoform dressing, or, preferably, silver foil, and the eye is bandaged. If there should be any intranasal bleeding, the nose can be packed with small strips of iodoform gauze, which can be removed within twenty-four hours. I have not found this necessary, however.

OGSTON-LUC AND KILLIAN METHODS

I have already mentioned the various external operations for the relief of chronic suppuration in the frontal sinus, viz., the method known as the Ogston-Luc and its modifications, and also the method of opening the sinus and removing a whole or part of its anterior wall and treating the cavity as an open wound. The cavity is gently packed with iodoform gauze, which is removed every second or third day. Granulations form and slowly fill the sinus. Care should be taken not to irrigate the wound, as the granulations are weakened thereby and do not grow rapidly. From four to six weeks is required to fill a fairly large cavity by this method, and in my experience it is fairly satisfactory, as far as a cure is concerned.

I have had no depressions of the anterior wall in my cases, such as is spoken of by some operators. This method is useful only in those cases not complicated with ethmoidal and sphenoidal disease.

The operation best suited for a permanent cure of a suppurative frontal sinusitis, with or without eye complications, and with or without ethmoidal and sphenoidal involvement, is the one known as the radical operation by Killian. This operation has for its purpose a complete removal of all diseased conditions of the frontal, ethmoidal and sphenoidal cavities, the most satisfactory method that we have at our command for the relief of these very serious conditions. In the Killian operation the whole of the anterior wall and the floor of the frontal sinus, which is the stumbling-block in the old methods, are removed.

This operation is a formidable one and fraught with danger, not only to the patient's life, but on account of possible serious injury to the eye and its appendages, and therefore, in order not to bring it into disrepute, it should be undertaken only by those surgically qualified. While this operation may be familiar to most, if not all of you, still a description of it may not be out of place here.

TECHNIC OF KILLIAN OPERATION

The turbinate having been removed at a previous sitting, the patient is anesthetized and placed in a semirecumbent position, at an angle of about forty-five degrees. The nose is then packed with cotton plugs, from four to five being required, according to its capacity. An incision is then made through the whole length of the eyebrow commencing at the external angle. At the inner end, the incision is carried down along the nasal bone to its lower end. Before making the incision through the skin, Killian advises small cross-cuts to be made in order to facilitate an accurate coaptation of the edges of the wound when it is closed. The incision is then carried through the periosteum over the supraorbital ridge and nasal bone, leaving the periosteum over the internal angular process where the bridge is to be made intact. The skin and periosteal tissue are now elevated and forcibly retracted from the frontal bone, and with a V-shaped chisel a furrow is cut through the anterior wall of the sinus, parallel with and about a quarter of an inch above the orbital ridge; an opening sufficiently large to admit of a De Vilbiss bone forceps is made, and with this instrument and various-shaped rongeurs, the whole of the anterior wall above the line of the incision can be removed flush with the frontal bone. The sinus is now completely exposed and all diseased tissue including the mucous lining of the cavity and all septa are removed.

The second stage of this operation corresponds to that described as the external method for opening the ethmoid cells. The periosteum is stripped from the outer half of the nasal bone and the nasal process of the superior maxilla. Then with a specially constructed curved elevator, the lacrimal sac is separated from its bed and the periosteum is detached from the inner wall of the orbit and the anterior two thirds of the os planum. The elevator is then turned upwards, detaching the periosteum from the roof of the orbit. Great care has to be observed not to detach the pulley from its attachment. This can be prevented by having an assistant hold his finger over and a little to the inner side of the supraorbital notch. Gradually, the periosteum is detached from the roof of the orbit as far as its outer angle. Then the outer half of the nasal bone and the nasal process of the superior maxilla are removed by means of a chisel as far as the lower end of the nasal bone, with a V-shaped chisel, and a line is made from the top of the nasal bone upward and outward to the rim of the orbit. This line runs diagonally through the internal angular process of the frontal bone, the upper part of which becomes part of the bridge; the lower part is removed by means of a rongeur. The lacrimal sac and the globe of the eye are retracted outward. Then with bone forceps the lacrimal bone and the os planum are removed, and working from before backward, we can remove the whole of the ethmoidal cells, and the anterior and part of the inferior wall of the sphenoidal sinus. Between the opening made in the frontal wall and the ethmoidal opening, there is a bridge of bone left which is an important factor in reducing the deformity so apt to result. The next step is to remove the roof of the orbit, which can be done with the bone forceps working from below upward, and then standing at the head of the patient and working from above downward, the whole of the floor of the sinus can be removed as far as its outer angle with a chisel. Great care has to be exercised in not detaching the trochlea, otherwise a very uncomfortable complication in the shape of obstinate diplopia results; while this symptom occasionally occurs from slight disturbance of the trochlea, it frequently passes off within a few weeks. Thus far it has happened to me only once, and was very transient in character. A perforated rubber drainage tube or gauze wick is now placed in the floor of the sinus, and brought down through the nose. This drain is allowed to remain from twenty-four to forty-eight hours, when it is removed.

The edges of the periosteum are sutured with catgut, and the external wound closed, great care being exercised to bring the cross-cuts together. The wound is closed either by a subcutaneous suture or numerous interrupted sutures of fine silk. In this latter way I believe we get a finer coaptation of the parts. The wound is then sealed with either silver foil or a 10 per cent. solution of iodoform and collodion. Killian, further to complete the obliteration of the frontal sinus, firmly presses the anterior wall against the posterior. This, however, leaves quite a depression which he afterward corrects by an injection of paraffin. To obviate this depression resulting from the complete removal of the anterior wall of the frontal sinus, Mosher has made a valuable modification of this operation by leaving quite an overhang of the anterior wall of the sinus. A sufficient opening is left so that all diseased conditions and bony septa within the sinus can be removed. I have followed his practice in a number of my more recent operations, and can testify to the greatly improved results over those in the original operation as proposed by Killian.

As has been already stated, the sphenoidal sinus can be opened and completely exenterated in the radical operation on the ethmoid, but it occasionally happens that in certain cases of sphenoidal disease, the sinus dips downward and extends considerably beyond the posterior ethmoidal cells in an outward direction. In these cases I have found certain eye symptoms, such as pain and photophobia, to continue even after the complete opening of the sphenoid in radical ethmoid operation. I have found it necessary in several cases to open the maxillary sinus and remove the diseased bone at the junction of the internal angle of the maxillary and sphenoidal sinuses. Generally speaking, by combining the external route with that through the maxillary sinus, the most obstinate sphenoidal disease can be eradicated.

In conclusion, I would state that in all sinus diseases accompanied by serious eye symptoms, I would give the patient the benefit of the doubt according to the sinus or sinuses involved, and would endeavor to relieve the condition by the endonasal method; but failing in this, I would advise one of the more radical methods as above described. We are more certain of removing all the diseased conditions in the one or more sinuses that may be involved, and the period of convalescence is much shorter than in the older methods, and the danger of relapse is greatly reduced.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SAUER, ANDREWS AND BRYAN

DR. C. F. WELTY, San Francisco: One case I have had illustrates the point regarding the open dressing of acute cases. My attention was called to that method by a paper written by a New York man, and I followed the advice he gave and had so much deformity that I was sued for malpractice and the suit is still pending. I advised my patient before the operation that such might be the result. We must protect ourselves as well as take care of our patients. Another case I wish to report is an eye case. The patient presented with the eye swollen almost shut. On examination I found polypoid hypertrophy of the middle turbinate and on removing that I found the whole mass of the ethmoid cells full of polypi or material of a polypoid nature. The swelling disappeared. In the course of a month the eye was shut again. I then did a Kilian operation. That is the case I spoke of this morning in which the patient was well within three weeks. Her frontal sinus was so full of polypi that when the mucous membrane was incised they bulged through. I don't think, however, there is such close association between the eye and the nose as we were led to believe a few years ago. Many men were then reporting indefinite eye symptoms that they attributed to possible nasal conditions. I do not do eye work. but I have not had occasion in my nasal work to call in eye men.

Dr. P. Schoonmaker, New York: In the postgraduate hospital we frequently have the eye disturbances Dr. Bryan speaks about. Possibly the preceding speaker has not looked for them. In performing the Kilian operation we often get deformity. And in this connection it is important to remember that with the partial operation there is just as complete drainage as when the entire overhang is removed and there is far less deformity.

Dr. George J. Lund, Los Angeles: During the past year I have had two cases that have bothered me considerably and one especially I would like to refer to. A young lady came to me with pain referred to the nasal region, with rapid loss of vision of the left eye, almost complete within a couple of weeks. Examination of the nasal fossæ revealed absolutely no evidence of nasal disease. I was never able to find any pus present. Ophthalmoscopic examination revealed a choked disk and typical optic neuritis. At that time a friend of mine told me of a similar case and of a procedure he used in that case to help in the diagnosis. He saturated a pledget of cotton with argyrol and placed it under the middle turbinate for twenty minutes. I did this and found a deposit of pus showing on the black substance. The patient was advised to have an operation, but refused and passed out of my care. I heard that she never recovered the use of the eye. I believe she had ethmoid disease and that an operation would have saved her eye. In another case, diagnosticated in the same way as ethmoid trouble, operation was followed by improvement in the vision. That little item in regard to diagnosis has been published and it seems to me very useful. As to the relation between eye and nasal diseases I have been the more impressed with that the longer I have practiced.

Dr. F. P. Emerson, Boston: One class of cases is very frequent, in which there is a history of frequent change of glasses with every irritation of the nose. Often there is in these cases a chronic rhinitis, with every exacerbation of which the ocular symptoms appear. The diagnosis of reflexes in the nose in connection with the eyes requires considerable experience. Every year we find additional foci in connection with these reflexes. There may be only a slight pressure of one turbinate on another or some occlusion of a sinus opening. This blocking may not be accompanied by pus. The last speaker's suggestion is useful. Often the discharge of a little secretion is followed by considerable relief to the patient. It has been my experience that if the anterior sphenoid wall is broken down with the curet considerable reaction occurs and the opening may close up. I have not had so much trouble since I have been biting this out clean and enlarging the opening as far as it seems to go. These operations also solve partially the question of how radical the operation shall be. Our eye cases are certainly some of the worst of our cases of sinus involvement. Often they do not come to us until far advanced and the entire floor of the frontal sinus is necrosed. Then nothing but a radical operation will do any good. We are getting to classify these cases better and to recognize better the cases that require radical operative procedures. I think the eye men are appreciating more and more the relation of the nasal cavities to the eye, and more of these cases are being referred to us. Certainly this symposium will be important in an educational way.

Dr. A. L. Kelsey, Los Angeles: Dr. Bryan spoke of protection of the trochlear sling in the Kilian operation. I would like to know if he has ever seen any permanent disturbance of ocular equilibrium caused by stripping the trochlear sling from its attachment. It was my privilege some years ago to see and examine a number of cases in which operation had been done previously, one case some three weeks and others of longer duration, and in none was there any permanent lack of equilibrium of the muscles.

Dr. A. H. Andrews, Chicago: We have a great many reflex eye symptoms in which we find no definite pathologic condition in the eye. We are more likely to find these in connection with the non-purulent diseases of the accessory cavities, those in which the cavity is filled with serous or mucoserous fluid. The inflammatory conditions of the eyes are more likely to be associated with purulent conditions in the cavities. Dr. Welty says he believes these cases are not so common as he formerly thought and it has been some time since he has referred a case of this sort to an ophthalmologist. If these patients find symptoms on the part of the eye they go to the ophthalmologist themselves. The fact that Dr. Welty has not seen these cases does not indicate that they do not exist. Dr. Lund speaks of introducing a pledget of cotton saturated with argyrol under the middle turbinal. I want to give a word of caution in this regard. If you introduce a pledget of cotton saturated with argyrol or anything else, or even dry cotton, under the turbinal, you will soon find mucus on it, and you must differentiate between mucus and pus or mucopurulent discharge. Dr. Emerson speaks of the frequent change of glasses. There are two explanations of that. One is that no glass relieves the patient and he continues to seek relief by frequent change of glasses. The other is that there is an actual change of refraction in these cases. A writer in the *Journal of Ophthalmology* speaks of scleritis associated with purulent disease of the nose, in which there is an actual change in refraction, due to actual change in the shape of the eye. In Dr. Bryan's paper he speaks of using care in curetting the sphenoid. It is always hazardous curetting the upper and outer part of the sphenoid sinus; never the lower and median wall. I would urge more thorough routine examination of these patients. I suggested some years ago the routine exploration of the sphenoid in all suspicious cases and stated that it could be done in the majority of cases without preliminary surgery, without removing the middle turbinate. With a special bend of the probe, we can get into the sphenoid and with a cannula it can be aspirated or blown out with air and its condition determined.

Dr. J. H. Bryan, Washington, D. C.: The last speaker has made a partial reply to Dr. Welty. I think if he will send his patients to an ophthalmologist he will find many cases in which he has overlooked the eye complications. I submit my patients to the ophthalmologist for a thorough examination. I have in this way found some of the most extraordinary cases, I believe, on record, varying from refractive disturbances to scotomata and paralysis of muscles and I think when the entire record is published it will open the eyes of the ophthalmologists as to the serious effects of the diseases of the accessory sinuses. As to detaching the trochlear from the ridge I have had only one case of diplopia lasting a few weeks. It can, I believe, be avoided largely by having an assistant hold his finger over the attachment. But the diplopia passes away without any serious permanent results.

The Spirit of Scientific Inquiry.—Scientific activity implies, of course, thorough disinterestedness. The investigator asks no favors and renders none. Any intimation that he act as a retainer or special pleader, any hint or suggestion that he restrict his explorations within certain limits, lest he injure cherished traditions, is a step toward the confinement of the free spirit of intellectual inquiry. Rather than surrender that freedom of inquiry or the right of untrammeled announcement of fresh discoveries, men of science have in the past submitted to tortures and painful death, and you may be sure that, if need be, they will be ready to sacrifice themselves again. So exalted is the regard in which the man of science holds the ideal to which his life is devoted that he would find in these words of Fichte his solemn pledge: "To this I am called, to bear witness to the truth. My life, my fortunes, are of little moment; the results of my life are of infinite moment. I am a priest of truth; I am in her pay; I have bound myself to do all things, to venture all things, to suffer all things for her. If I should be persecuted and hated for her sake, if I should even meet death in her service, what wonderful thing is it I shall have done—what but that which I clearly ought to?" —Cannon in *Science*.

GANGRENE OF FINGER CAUSED BY 5 PER CENT. PHENOL OINTMENT

O. F. SCHUSSLER, M.D., and M. A. STERN, M.D.
SOUTH ST. PAUL, MINN.

R. P., an ignorant Hungarian, received a slight scratch on the anterior surface of the second metacarpal (right) about April 17, 1911. He went home and applied a 5 per cent. phenol salve on a closed dressing, according to instructions given him by the druggist who sold the salve. April 24, he reported at my office with finger gangrenous from the distal end of the proximal phalanx to the root of the nail. The gangrene was dry and the finger was completely mummified and as hard as a stone. Moist hot dressings of weak liquor cresolis compositus were applied and by May 1 sloughs were separating. May 20 tendons and periosteum of phalanx had disappeared and May 26 finger was amputated one inch below metacarpophalangeal joint. The bone was soft and mushy and soft tissues devitalized. Recovery was uneventful.

Therapeutics

RINGWORM: TINEA TRICHOPHYTINA

To two very different diseases the name "tinea" has been given: one is tinea favosa, which is caused by the *Achorion schönleinii;* the other is tinea trichophytina, which is caused by the vegetable parasitic fungus trichophyton. It is the latter to which the present remarks will be limited.

The effects of this fungus are usually divided into three subdivisions, according to the particular part of the body affected. When that part of the face on which the beard grows is affected, it is distinguished as tinea barbæ, or ringworm of the beard, or barber's itch. When the hair of the scalp is affected, it is known as tinea tonsurans, or ringworm of the scalp. When other parts of the body are affected it is known as tinea circinata, or ringworm of the body. These three varieties of the disease are also distinguished respectively as tinea trichophytina barbæ, tinea trichophytina capitis, and tinea trichophytina corporis. The same remedies are applicable to the treatment of these three forms of the disease, but the location in which the lesion is found necessitates some difference in their mode of application.

The trichophyton fungus is found and grows in the epidermal layer of the skin. It penetrates into the hair follicles, and also into the root and body of the hair. Its presence in the latter locations renders the application of drugs for its destruction very difficult, and it is on this account that the affection of the hairy scalp and of the beard is especially resistant to treatment.

There are several drugs which are useful in the treatment of the disease when they can be effectively applied. The most important are mercury, hyposulphite of sodium (sodii thiosulphas), tincture of iodin, and sulphur. When there are a few spots on the surface of the body, a useful application is the following:

℞	Gm. or c.c.			
Hydrargyri chloridi corrosivi		10		gr.ii
Glycerini	5		or	fl.ʒii
Aquæ	ad 50			ad fl.℥ii

M. et Sig.—Shake, and rub thoroughly into the lesion, twice a day.

The application of this lotion, or in fact of any remedy, should be preceded by a thorough scrubbing of the affected parts with hot water and soap, preferably soft soap or green soap. When the patient is a young child, care should be exercised not to apply too strong a lotion and not to apply it to too extensive a portion of the body, for too liberal applications of strong mercurial lotions may cause mercurial poisoning.

Another very effective remedy for the trichophyton as well as for other vegetable parasitic growths is the hyposulphite of sodium. This may be used in the strength of 15 to 20 per cent. in water.

If one prefers to use an ointment—and ointments are often exceedingly useful because watery preparations do not easily penetrate the skin—an efficient ointment is the official unguentum hydrargyri ammoniati. This ointment is 10 per cent. in strength. If there are many spots of disease, or the skin is tender, it is well to dilute it with an equal part of lard or petroleum fat, as:

℞	Gm.		
Unguenti hydrargyri ammoniati	15	or	
Adipis benzoinati	15		āā ℥ss

M. et Sig.—Apply to spots twice a day.

Sulphur may be used in ointment or lotion, but is not so efficient.

If the condition is chronic, and these washes and lotions do not prove effective, the patches may be painted with tincture of iodin. This may be repeated every day for several days until the inflammation becomes so great that the application causes objectionable discomfort

Ointments containing chrysarobin (incorrectly called chrysophanic acid), or pyrogallol (pyrogallic acid) are effective, but should not often be used on account of the fact that they stain the skin and clothing, and sometimes cause considerable inflammation.

When the scalp is affected and the fungus has penetrated the hair follicles, it is often difficult to apply these remedies effectively. It is generally wise to cut the hair short, and even to shave the head. The hairs will usually be found broken, and it is generally desirable to remove as many of the hairs as possible before applying the remedy. The affected parts should then be thoroughly washed with soap and water, and lotions of corrosive sublimate or of the thiosulphate of sodium may be used.

In cases which prove resistant to other treatment, it is sometimes necessary to attempt a cure by producing an active inflammation of the affected part. This may be accomplished by painting the part with tincture of iodin, as has been already mentioned; or croton oil may be rubbed into the affected part; or the part may be painted with cantharidated collodion so as to produce a blister. This will often result in a rapid cure.

The *x*-ray has been used as a germicidal application, and as a promoter of a mild dermatitis (often a forerunner of a cure) in all parts of the body, and with frequent reports of success. The hair, if the ray is used on hairy parts, falls out, but seems to generally soon return.

When the beard is affected, the removal of the hairs can generally be more thoroughly accomplished, and then the various applications already enumerated may be used.

Poultices have been suggested for the purpose of softening the skin and cleaning off the crusts, but they are generally undesirable, as the moist heat favors the growth of the fungus.

These cases are often very obstinate, and treatment must sometimes be carried on, intermittently, for weeks. It often happens that an apparent cure results while a few of the fungi still remain in the skin without showing any evidence of their presence. Consequently, cases should be kept under observation for some time after a cure is apparently complete, and if any evidence of a return of the disease appears, the treatment should be renewed.

This disease appears more frequently in children than in adults, and the growth of the fungus seems to be favored by high temperature and by moisture. The disease is contagious, and is readily passed from one individual to another. Where considerable numbers of people associate intimately together great care should be observed to prevent one contracting the disease from another. The use of combs, brushes, towels and clothing by different individuals in common should be strictly forbidden, especially when the existence of a single case among a number of children, as for instance in a large family or in a school, is known. It seems likely that with the extension of medical inspection to children in the public schools and with sanitary barber shops. this disease will, in a few years, become exceedingly rare.

INGROWING TOE-NAIL

This rather common, always troublesome, and frequently obstinate affection is usually considered as belonging in the domain of the surgeon, but the general practitioner is often consulted first, and the patient frequently objects to operative treatment. When he does so, he is entitled to receive from his physician such less radical treatment as will increase his comfort and, if possible, cure the disease.

This condition may be the result of an hypertrophy of the nail, which may become thickened and increase laterally so as to become imbedded in the tissues at the side of the nail. More commonly the trouble is due to the patient's carelessness in not keeping his feet clean, in not paying proper attention to the condition of his nails, and in wearing too tight or otherwise ill-fitting shoes. The condition is characterized by swelling, with congestion and inflammation of the tissues, accompanied with considerable, and often intolerable pain.

When it is decided to apply palliative treatment and there is considerable swelling and inflammation in the soft parts, attended with pain, the toe may be poulticed for twenty-four hours with an antiseptic wet dressing. A very efficient and satisfactory antiseptic wet dressing is one of alcohol 1 part and hot water 4 parts. A napkin or a large bunch of loose gauze is thoroughly soaked in this solution and applied about the toe and the part of the foot affected; then the foot and application is surrounded by rubber tissue or oil silk, and a retaining bandage applied. This dressing may be reapplied every six hours. This application will relieve the pain, swelling and inflammation, and soften the nail. It may be preferable to apply constantly for twenty-four or forty-eight hours a warm 1 per cent. solution of phenol (carbolic acid). A strong solution of hydrogen peroxid, 1 part to 4 of water, may also be used as a dressing. The patient, of course, must be quiet in bed, or in a chair with his leg and foot resting on a pillow on another chair.

After these wet dressings have been applied constantly for one or two days, the plan of treatment may be somewhat changed. At each dressing the toe should be allowed to soak in a bowl of hot water for ten minutes. The water may contain 1-per cent. of phenol, or a 1 to 2,000 solution of corrosive sublimate. In this way both the nail and the surrounding tissues are softened and thoroughly cleansed. If there are granulations present, these should be touched with a stick of nitrate of silver (lunar caustic), or with a swab wet with a 25 per cent. solution of nitrate of silver.

An effort should be made to retract the soft tissues from the side of the nail, and as this is accomplished a small piece of sterile gauze or sterile linen should be placed under the edge of the nail between it and the soft tissues. Narrow strips of adhesive plaster may then be applied transversely to the nail and around the toe so as to exert pressure on the soft parts in such a direction as to draw them away from the side of the nail.

After this treatment has been followed for some days, the condition of the parts will usually be found to be greatly improved. The pain, inflammation and swelling of the soft parts will have disappeared, and the edge of the nail will not be overlapped by the soft parts.

By this time the patient wishes to walk about, and then he must be provided with a suitable shoe which will be large enough not to press injuriously on the toe. The toe should also be wrapped in absorbent cotton so as to be protected from the moderate pressure which is more or less inevitable.

Instead of this treatment, some prefer to touch the granulating point with a drop of pure phenol.

In other cases it may be preferable to apply a drying and antiseptic powder, as:

℞	Gm.		
Sodii salicylatis	50	or	gr.x
Acidi borici	50		℥ii

M. et Sig.—Use externally.

Or,

℞	Gm.		
Sodii salicylatis	50		gr.x
Mentholis	2	or	ʒss
Acidi borici	ad 50		ad ℥ii

M. et Sig.—Use externally.

Or,

℞	Gm.		
Sodii salicylatis	25		gr.v
Aluminis exsiccati	5	or	ʒiss
Acidi borici	ad 25		ad ℥i

M. et Sig.—Use externally.

If these simple methods of treatment do not prove effective, a more radical surgical procedure must be resorted to. In this case it is necessary to give the patient a general anesthetic, or to apply sufficient local anesthesia. The congested and swollen soft parts may then be removed with a sharp knife and the raw surface allowed to heal by granulation under suitable dressings. Or, the part of the nail which has grown into the soft parts may be removed by incision and avulsion, along with the matrix beneath it, which will prevent further growth of the nail, and leave the parts free from the irritation of the edge of the nail. In other cases the whole nail may be removed and a part, or the whole, of the matrix so that no part of the nail will grow again.

Infection of Wounds.—The nearer we can approach, without unreasonably delaying the operation, to four clean hands, rubber-gloved, the wiser. (They must be clean, absolutely, because of the occasional tearing or cutting of a glove finger.) With one excellently trained player in the treble, the surgeon takes the bass, making the *magnum opus* a four-handed piece; and there will be, indeed, few or no false notes while this music lasts—certainly a triumph, remembering that the musicians are playing while gloved. To-day, with rare exceptions, infection in a clean wound should mean shame to the surgeon.—Dawbarn in *Medical Record.*

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Aquæ	ad 50		ad fl.ʒii

M. et Sig.—Shake, and rub thoroughly into the lesion, twice a day.

The application of this lotion, or in fact of any remedy, should be preceded by a thorough scrubbing of the affected parts with hot water and soap, preferably soft soap or green soap. When the patient is a young child, care should be exercised not to apply too strong a lotion and not to apply it to too extensive a portio the body, for too liberal applications of strong merc lotions may cause mercurial poisoning.

Another very effective remedy for the trichoph as well as for other vegetable parasitic growths is hyposulphite of sodium. This may be used in strength of 15 to 20 per cent. in water.

If one prefers to use an ointment—and ointment- often exceedingly useful because watery preparation not easily penetrate the skin—an efficient ointmen the official unguentum hydrargyri ammoniati. ointment is 10 per cent. in strength. If there are n spots of disease, or the skin is tender, it is well to di it with an equal part of lard or petroleum fat, as:

℞	Gm.		
Unguenti hydrargyri ammoniati....	15	or	
Adipis benzoinati	15		ā

M. et Sig.—Apply to spots twice a day.

Sulphur may be used in ointment or lotion, bu not so efficient.

If the condition is chronic, and these washes lotions do not prove effective, the patches may be pai with tincture of iodin. This may be repeated every for several days until the inflammation becomes so that the application causes objectionable discomfor

Ointments containing chrysarobin (incorrectly c chrysophanic acid), or pyrogallol (pyrogallic acid effective, but should not often be used on account o fact that they stain the skin and clothing, and times cause considerable inflammation.

When the scalp is affected and the fungus has trated the hair follicles, it is often difficult to these remedies effectively. It is generally wise t the hair short, and even to shave the head. The will usually be found broken, and it is generally able to remove as many of the hairs as possible applying the remedy. The affected parts shoul be thoroughly washed with soap and water, and of corrosive sublimate or of the thiosulphate of may be used.

In cases which prove resistant to other treatn is sometimes necessary to attempt a cure by pr an active inflammation of the affected part. T be accomplished by painting the part with tin iodin, as has been already mentioned; or croton be rubbed into the affected part; or the part painted with cantharidated collodion so as to p blister. This will often result in a rapid cure.

The *x*-ray has been used as a germicidal ap and as a promoter of a mild dermatitis (oft runner of a cure) in all parts of the body, frequent reports of success. The hair, if t used on hairy parts, falls out, but seems to soon return.

When the beard is affected, the removal o can generally be more thoroughly accomp then the various applications already enum be used.

Poultices have been suggested for the softening the skin and cleaning off the cr are generally undesirable, as the moist h growth of the fungus.

These cases are often very obstinate, must sometimes be carried on, intermitt It often happens that an apparent cur few of the fungi still remain in the s ing any evidence of their presence.

should be kept under observation for some time after a cure is apparently complete, and if any evidence of a return of the disease appears, the treatment should be renewed.

This disease appears more frequently in children than in adults, and the growth of the fungus seems to be favored by high temperature and by moisture. The disease is contagious, and is readily passed from one individual to another. Where considerable numbers of people associate intimately together great care should be observed to prevent one contracting the disease from another. The use of combs, brushes, towels and clothing by different individuals in common should be strictly forbidden, especially when the existence of a single case among a number of children, as for instance in a large family or in a school, is known. It seems likely that with the extension of medical inspection to children in the public schools and with sanitary barber shops. this disease will, in a few years, become exceedingly rare.

INGROWING TOE-NAIL

This rather common, always troublesome, and frequently obstinate affection is usually considered as belonging in the domain of the surgeon, but the general practitioner is often consulted first, and the patient frequently objects to operative treatment. When he does so, he is entitled to receive from his physician such less radical treatment as will increase his comfort and, if possible, cure the disease.

This condition may be the result of an hypertrophy of the nail, which may become thickened and increase laterally so as to become imbedded in the tissues at the side of the nail. More commonly the trouble is due to the patient's carelessness in not keeping his feet clean, in not paying proper attention to the condition of his nails, and in wearing too tight or otherwise ill-fitting shoes. The condition is characterized by swelling, with congestion and inflammation of the tissues, accompanied with considerable, and often intolerable pain.

When it is decided to apply palliative treatment and there is considerable swelling and inflammation in the soft parts, attended with pain, the toe may be poulticed for twenty-four hours with an antiseptic wet dressing. A very efficient and satisfactory antiseptic wet dressing is one of alcohol 1 part and hot water 4 parts. A napkin or a large bunch of loose gauze is thoroughly soaked in this solution and applied about the toe and the part of the foot affected; then the foot and application is surrounded by rubber tissue or oil silk, and a retaining bandage applied. This dressing may be reapplied every six hours. This application will relieve the pain, swelling and inflammation, and soften the nail. It may be preferable to apply constantly for twenty-four or forty-eight hours a warm 1 per cent. solution of phenol (carbolic acid). A strong solution of hydrogen peroxid, 1 part to 4 of water, may also be used as a dressing. The patient, of course, must be quiet in bed, or in a chair with his leg and foot resting on a pillow on another chair.

After these wet dressings have been applied constantly for one or two days, the plan of treatment may be somewhat changed. At each dressing the toe should be allowed to soak in a bowl of hot water for ten minutes. The water may contain 1-per cent. of phenol, or a 1 to 2,000 solution of corrosive sublimate. In this way both the nail and the surrounding tissues are softened and thoroughly cleansed. If there are granulations present, these should be touched with a stick of nitrate of silver (lunar caustic), or with a swab wet with a 25 per cent. solution of nitrate of silver.

An effort should be made to retract the soft tissues from the side of the nail, and as this is accomplished a small piece of sterile gauze or sterile linen should be placed under the edge of the nail between it and the soft tissues. Narrow strips of adhesive plaster may then be applied transversely to the nail and around the toe so as to exert pressure on the soft parts in such a direction as to draw them away from the side of the nail.

After this treatment has been followed for some days, the condition of the parts will usually be found to be greatly improved. The pain, inflammation and swelling of the soft parts will have disappeared, and the edge of the nail will not be overlapped by the soft parts.

By this time the patient wishes to walk about, and then he must be provided with a suitable shoe which will be large enough not to press injuriously on the toe. The toe should also be wrapped in absorbent cotton so as to be protected from the moderate pressure which is more or less inevitable.

Instead of this treatment, some prefer to touch the granulating point with a drop of pure phenol.

In other cases it may be preferable to apply a drying and antiseptic powder, as:

℞	Gm.			
Sodii salicylatis		50	or	gr.x
Acidi borici	50			℥ii

M. et Sig.—Use externally.

Or,

℞	Gm.			
Sodii salicylatis		50		gr.x
Mentholis	2		or	ʒss
Acidi borici	ad 50			ad ℥ii

M. et Sig.—Use externally.

Or,

℞	Gm.			
Sodii salicylatis		25		gr.v
Aluminis exsiccati	5		or	ʒiss
Acidi borici	ad 25			ad ℥i

M. et Sig.—Use externally.

If these simple methods of treatment do not prove effective, a more radical surgical procedure must be resorted to. In this case it is necessary to give the patient a general anesthetic, or to apply sufficient local anesthesia. The congested and swollen soft parts may then be removed with a sharp knife and the raw surface allowed to heal by granulation under suitable dressings. Or, the part of the nail which has grown into the soft parts may be removed by incision and avulsion, along with the matrix beneath it, which will prevent further growth of the nail, and leave the parts free from the irritation of the edge of the nail. In other cases the whole nail may be removed and a part, or the whole, of the matrix so that no part of the nail will grow again.

Infection of Wounds.—The nearer we can approach, without unreasonably delaying the operation, to four clean hands, rubber-gloved, the wiser. (They must be clean, *absolutely*, because of the occasional tearing or cutting of a glove finger.) With one excellently trained player in the treble, the surgeon takes the bass, making the *magnum opus* a four-handed piece; and there will be, indeed, few or no false notes while this music lasts—certainly a triumph, remembering that the musicians are playing while *gloved*. To-day, with rare exceptions, infection in a clean wound should mean shame to the surgeon.—Dawbarn in *Medical Record*.

University of Illinois College of Medicine, Honore and Congress Streets.—Organized in 1882 as the College of Physicians and Surgeons. The first class graduated in 1883. It became the Medical Department of the University of Illinois by affiliation in 1896 and an integral part in 1910. Present title assumed in 1911. The American Medical Missionary College was merged into it in 1910. The faculty is composed of 44 professors, 95 assistants and instructors, a total of 139. The fees are $155 each for the first two years, $150 for the third, and $160 for the fourth year. The Dean is Dr. William E. Quine. Total registration for 1910-11 was 508; graduates, 94. The thirtieth session begins Sept. 26, 1911, and ends June 4, 1912.

Chicago College of Medicine and Surgery, 706 South Lincoln Street.—Organized in 1901 as the American College of Medicine and Surgery (Chicago Eclectic Medical College). The latter part of the name was dropped in 1902 and it became the Medical Department of Valparaiso University. Eclecticism was dropped in 1905. The name was changed to the above in 1907. The course covers four years of eight months each. The faculty consists of 39 professors and 34 lecturers and assistants, a total of 73. The total fees for each of the four years, respectively, are $120, $110, $100 and $100. The Registrar is Dr. G. E. Wyneken. The total registration for 1910-11 was 630; graduates, 86. The eleventh session begins Sept. 26, 1911, and ends May 20, 1912.

Hahnemann Medical College and Hospital of Chicago, 2811 Cottage Grove Avenue.—Organized in 1859. The first class was graduated in 1861. The faculty includes 38 professors and 46 lecturers, assistants, etc., a total of 84. The course extends over four years of eight months each. The tuition fees are $100 each year. The Registrar is Dr. W. Henry Wilson. The total registration for 1910-11 was 107; graduates, 22. The fifty-second session begins Sept. 27, 1911, and ends May 25, 1912.

Hering Medical College, Homeopathic, Wood and York Streets.—Organized in 1892. The first class graduated in 1893. The faculty consists of 28 professors and 22 assistants, instructors, etc., a total of 50. The tuition fees for each of the four years respectively are $115, $105, $110 and $100. The Dean is Dr. Robert N. Morris. The total registration for 1910-11 was 40; graduates, 7. The next session begins Sept. 26, 1911, and ends June 16, 1912.

Bennett Medical College, Fulton and Ada Streets, Medical Department of Loyola University.—Organized in 1868 as the Bennett College of Eclectic Medicine and Surgery. Dropped Eclecticism in 1909. In 1910 it united with the Illinois Medical College and became by affiliation the Medical Department of Loyola University. The first class graduated in 1870. The faculty numbers 102. The course covers four years of thirty weeks each. Fees for each year are $125, with a matriculation fee, paid once, of $5. The President is Dr. John D. Robertson. The total registration for the two colleges in 1910-11 was 283; graduates, 56. The next session begins Sept. 26, 1911, and ends June 13, 1912.

Jenner Medical College, an afternoon and evening school, located at 223 West Washington Street.—Organized in 1892. Classes were graduated in 1896 and in all subsequent years. The faculty numbers 42. The Secretary is Dr. John D. MacKellar. Total registration for 1910-11 was 117; graduates, 9. The next session begins Sept. 5, 1911, and ends June 15, 1912.

INDIANA

Indiana, population 2,700,876, has one medical college, the Indiana University School of Medicine, located at Indianapolis, a city of 233,650 people, except that the work of the first year is offered also at Bloomington, the seat of the University.

Bloomington and Indianapolis

Indiana University School of Medicine.—Organized in 1893, medical course until 1905. In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1907 by the merger of the Medical College of Indiana (organized in 1869) and the Fort Wayne College of Medicine (organized in 1879) merged into it. The faculty consists of 100 professors and 89 lecturers, associates and assistants, a total of 189. Two years of collegiate work are required for admission. The work of the first year may be taken either at Bloomington or at Indianapolis. The work of the other three years is all done at Indianapolis. A fifth optional year leading to the "M.D. *cum laude*" has been added. The Secretary at Bloomington is Dr. B. D. Myers; the Dean is Dr. Charles P. Emerson, Indianapolis. The total registration for 1910-11 was 188; graduates, 52. The next session begins Sept. 21, 1911, and ends June 18, 1912.

IOWA

Iowa, population 2,224,771, has three medical colleges. The College of Medicine of the State University of Iowa and the College of Homeopathic Medicine of the State University of Iowa are located in Iowa City, population 10,091. In Des Moines, population 86,368, is the College of Medicine of Drake University.

Des Moines

Drake University College of Medicine.—First two years given on the University Campus, University Avenue, between Twenty-fifth and Twenty-eighth Streets, the clinical years at Fourth and Center Streets. Organized in 1881 as the Iowa Eclectic Medical College. The first class graduated in 1882. In 1887 it merged into the Iowa College of Physicians and Surgeons and became the Medical Department of Drake University. In 1903 it took its present title. The faculty consists of 20 professors and 23 assistants, lecturers, etc., a total of 43. Two years of collegiate work, including courses in physics, chemistry and biology, are required for admission. The work covers four years of nine months each. The total fees are $165 each year. The Dean is Dr. William Wilson Pearson. The total registration for 1910-11 was 72; graduates, 14. The twenty-ninth session begins Sept. 20, 1911, and ends June 12, 1912.

Iowa City

State University of Iowa College of Medicine. University Campus.—Organized in 1869. First session began in 1870. First class graduated in 1871. The faculty is made up of 15 professors, 25 lecturers, demonstrators and assistants, a total of 40. Two years of collegiate work, including courses in physics, chemistry and biology, are required for admission. The course of study covers four years of thirty-six weeks each. Total fees for each year are $50 plus a matriculation fee of $10 paid but once and a graduation fee of $10. The Dean is Dr. James R. Guthrie, Dubuque. Total number of students registered for 1910-11 was 118; graduates, 24. The forty-second session begins September 18, 1911, and ends June 12, 1912.

State University of Iowa College of Homeopathic Medicine.—Organized in 1877. The first class graduated in 1878. The faculty is composed of 11 professors and 19 lecturers and assistants, a total of 30. The work of the first two years is taken in classes with the students of the College of Medicine of the State University of Iowa, and it has the same entrance requirements. The fees are $50 each year, plus a matriculation fee of $10, paid but once, and a graduation fee of $10. The Dean is Dr. George Royal. Total registration for 1910-11 was 18; graduates, 3. The thirty-fourth session begins Sept. 18, 1911, and ends June 2, 1912.

KANSAS

Population 1,690,949, has two medical colleges. Kansas Medical College is in Topeka, population 43,684. The School of Medicine of the University of Kansas gives its first two years in Lawrence, population 12,915, and the last two years in Rosedale, a suburb of the two Kansas Cities, which together have a population of 330,662.

Lawrence and Kansas City

University of Kansas School of Medicine.—Organized in 1880. In 1905 it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico-Chirurgical College, founded in 1897. The faculty, including lecturers and clinical assistants, numbers 84. The requirements for admission are two years of collegiate work. The course covers four years of nine months each. The total fees are, for the first two years, $60 per year (and for non-residents of the state, $80); for the last two years, $100 and $110, respectively. The Dean at Lawrence is Dr. Mervin T. Sudler. The Dean at Kansas City is Dr. George Howard Hoxie. The total registration for 1910-11 was 85; graduates, 19. The thirty-second session begins Sept. 13, 1911, and ends June 5, 1912.

Topeka

Kansas Medical College, 521 Quincy Street.—Organized in 1890. The first class graduated in 1892. It has been the Medical Department of Washburn College since 1903. It has a faculty of 31 professors and 10 lecturers and assistants, a total of 41. The course covers four years of nine months each. Fees, $100 yearly. Matriculation fee of $5 paid but once. The Dean is Dr. William E. McVey. Total registration for 1910-11 was 52; graduates, 10. The twenty-second session begins Sept. 12, 1911, and ends June 5, 1912.

KENTUCKY

Kentucky, population 2,289,905, has two medical colleges. They are both situated in Louisville, a city of 223,928 inhabitants, and are as follows: University of Louisville Medical Department and Louisville National Medical College.

Louisville

University of Louisville Medical Department, Eighth and Chestnut Streets.—Organized in 1837 as the Louisville Medical Institute. The first class graduated in 1838, and a class graduated in each subsequent year except 1863. In 1846 the present name was assumed. In 1907 it absorbed the Kentucky University Medical Department. In 1908 it absorbed the Louisville Medical College, the Hospital College of Medicine and the Kentucky School of Medicine. It has a faculty of 42 professors and 50 lecturers and assistants, a total of 92. The course covers four years of thirty-two weeks each. The fees are $105 each year; graduation fee, $25. The Dean is Dr. W. Edward Grant. The total registration for 1910-11 was 447; graduates, 159. The next session begins Oct. 2, 1911, and ends May 30, 1912.

Louisville National Medical College.—Colored. 112 West Green Street.—Organized in 1888. The first class graduated in 1889. The faculty numbers 23. The course covers four years of seven months each. The fees are $60, $55, $55 and $75 for the four years, respectively. The Dean is Dr. E. S. Porter. Total registration for 1910-11 was 25; graduates, 10. The next session begins Oct. 2, 1911, and ends May 18, 1912.

LOUISIANA

Louisiana, having a population of 1,656,388, contains one medical college, the Medical Department of the Tulane University of Louisiana, situated in New Orleans, a city of 339,075.

New Orleans

Medical Department of the Tulane University of Louisiana. University Campus and 1551 Canal Street.—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years, except 1863-65, inclusive. It was transferred to Medical Department of the University of Louisiana in 1847 and became the Medical Department of the Tulane University in 1884. The faculty numbers 93. The course covers four years of thirty-two weeks each. One year of collegiate work is required for admission. Total fees are $180 per year; graduation fee, $30. The Dean is Dr. Isadore Dyer. The total registration for 1910-11 was 379; graduates, 90. The seventy-eighth session begins Sept. 29, 1911, and ends May 29, 1912.

MAINE

Maine, population 742,371, has one medical college, located in Brunswick and Portland, the latter having a population of 58,571.

Brunswick-Portland

Medical School of Maine.. The medical department of Bowdoin College. The first two years are given at Bowdoin College, Brunswick, the last two at Portland, building located on Chadwick Street.—Organized in 1820. The first class graduated in 1820. The faculty numbers 41. The course covers four years of eight months each. The total fees are $120 for the first year and $110 for each of the other three years. The Dean is Dr. Alfred Mitchell, Brunswick. Total number of students in 1910-11 was 67; graduates, 13. The ninety-first session begins Oct. 12, 1911, and ends June 19, 1912.

MARYLAND

Maryland, with a population of 1,295,346, contains five medical colleges, all located in Baltimore, a city with 558,485 inhabitants. They are as follows: Johns Hopkins University Medical Department, School of Medicine of the University of Maryland, College of Physicians and Surgeons, Baltimore Medical College and Maryland Medical College.

Baltimore

Johns Hopkins University Medical Department, Washington and Monument Streets.—Organized in 1893. The first class graduated in 1897. The faculty consists of 23 professors and 89 clinical professors, etc., a total of 112. The requirements for admission demand that the applicant either has (a) completed the chemical-biologic course which leads to the A.B. degree in the university or (b) graduated at an approved college or scientific school and has a knowledge of French and German, physics, chemistry and biology, such as may be obtained from a year's course. The course extends over four years of eight and one-half months each. The charge for tuition is $200 per annum. The Dean is Dr. J. Whitridge Williams. Total registration for 1910-11 was 347; graduates, 85. The nineteenth session begins Oct. 3, 1911, and ends June 11, 1912.

College of Physicians and Surgeons, Calvert and Saratoga Streets.—Organized in 1872. The first class graduated in 1873. In 1878 it united with Washington University School of Medicine. The faculty numbers 62. The work covers four years of eight months each. Total fees are $155 for each of the first three years and $185 for the fourth year. The Dean is Dr. Charles F. Bevan. The total number of students registered in 1910-11 was 289; graduates, 57. The fortieth session begins Oct. 2, 1911, and ends June 16, 1912.

University of Maryland School of Medicine, Lombard and Greene Streets. Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. The faculty numbers 62. The course covers four years of eight months each. The total fees are $155 each year; graduation fee, $30. The Dean is Dr. R. Dorsey Coale. The total number of students registered in 1910-11 was 324; graduates, 70. The 105th session begins Oct. 2, 1911, and ends June 1, 1912.

Baltimore Medical College, Madison Street and Linden Avenue.—Organized in 1881. The first class graduated in 1882. The faculty numbers 75. The course covers four years of eight months each. Total fees for the first three years are $125 per year; for the fourth year, $155. The Dean is Dr. David Streett. The total number of students registered in 1910-11 was 205; graduates, 48. The thirtieth session begins Sept. 20, 1911, and ends June 1, 1912.

Maryland Medical College, 1114 West Baltimore Street.—Organized in 1898. The first class graduated in 1899. The faculty numbers 39. The course covers four years of eight months each. Total fees for the four years, respectively, are $111, $111, $105 and $135. The Dean is Dr. W. S. Smith. The total registration for 1910-11 was 167; graduates, 65. The next session begins Oct. 2, 1911, and ends June 1, 1912.

MASSACHUSETTS

Massachusetts, population 3,366,416, has four medical colleges: Medical School of Harvard University, Boston University School of Medicine, College of Physicians and Surgeons and Tufts College Medical School. They are all situated in Boston, a city of 670,585.

Boston

Medical School of Harvard University, Longwood Avenue.—Organized in 1782. The first class graduated in 1788. It has a faculty of 30 professors and 146 associates, assistants, etc., a total of 176. Candidates for admission "must present a degree in arts, literature, philosophy or science from a recognized college or scientific school, with the exception of such persons as may be admitted by special vote of the faculty." The session is four years of eight months each. Fees: Matriculation, $5; tuition, $200 each year. The Dean is Dr. Henry A. Christian. The total registration for 1910-11 was 264; graduates, 87. The 130th session begins Sept. 28, 1911, and ends June 28, 1912.

Boston University School of Medicine, 80 East Concord Street.—Organized in 1873. In 1874 the New England Female Medical College, founded in 1848, was merged into it. The first class graduated in 1874. The faculty includes 25 professors, 49 associates etc., a total of 74. The course covers four years of eight months each. Total fees for the first, second and third years, $127 each, and for the last year $155. The Dean is Dr. John P. Sutherland, 295 Commonwealth Avenue. Total registration for 1910-11 was 86; graduates, 16. The thirty-ninth session begins Oct. 5, 1911, and ends June 6, 1912.

Tufts College Medical School, 416 Huntington Avenue.—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. It has a faculty of 22 professors and 94 assistants, lecturers, etc., a total of 116. The course covers four years of eight months each. The total fees are $155 each year. The Secretary is Dr. Frederic M. Briggs, 416 Huntington Avenue Total number of students for 1910-11 was 379; graduates, 71. The eighteenth session begins Sept. 27, 1911, and ends June 1, 1912.

College of Physicians and Surgeons, 517 Shawmut Avenue.—Organized in 1880. The first class graduated in 1882. The college announcement gives the names of 226 "matriculants and applicants" for the session of 1909-10, which included both dental and medical students. The same total is given for 1910-11, but 198 are reported as having "registered" for the medical work. The names of some of the students who graduated in 1910 appear in the announcements of this school from six to nine years! There were 23 medical graduates reported in 1911. The Dean is Dr. Thomas D. Crothers. *This college is not recognized by the Massachusetts Medical Society.*

MICHIGAN

Michigan, population 2,810,173, has four medical colleges. Two of these, the University of Michigan Department of Medicine and Surgery and the Homeopathic College of the University of Michigan, are located at Ann Arbor, a city of 14,817 people. Detroit, a city of 465,766 inhabitants, contains two medical colleges, the Detroit College of Medicine and the Detroit Homeopathic College.

Ann Arbor

University of Michigan Department of Medicine and Surgery.—Organized in 1850. The first class graduated in 1851. It has a faculty composed of 33 professors, 38 associates, instructors, etc., a total of 71. The entrance requirements are two years of college work, including courses in chemistry, physics and biology, with laboratory work, and a reading knowledge of one modern language. The curriculum embraces four years of nine months each. The total fees for Michigan students for the entire course of four years is $350 and for others about $400. The Dean is Dr. Victor C. Vaughan. The total registration for 1910-11 was 260; graduates, 53. The sixty-second session begins Oct. 3, 1911, and ends June 27, 1912.

University of Michigan Homeopathic College.—Organized in 1875. The first class graduated in 1877. Although the work of the first two years taken in the same classes with the Department of Medicine and Surgery of the University of Michigan, nevertheless the entrance requirements are still kept at only a high-school education—a difference of two years of collegiate work! It is announced that one year of collegiate work will be required for admission in 1912 and thereafter. The Dean is Dr. W. B. Hinsdale. The total registration for 1910-11 was 92; graduates, 13. The next session begins Oct. 3, 1911, and ends June 27, 1912.

Detroit

Detroit College of Medicine, St. Antoine, Catherine and Mullett Streets and Gratiot Avenue.—Organized in 1885 by consolidation of Detroit Medical College, organized in 1868, and the Michigan College of Medicine, organized in 1880. The first class graduated in 1886. The faculty embraces 23 professors, 101 lecturers, instructors, etc., a total of 124. The course covers four years of eight months each. The Registrar is Dr. F. B. Walker. The total registration for 1910-11 was 163; graduates, 41. The twenty-seventh session begins Sept. 20, 1911, and ends May 23, 1912.

Detroit Homeopathic College, Lafayette Avenue and Third Street.—Organized in 1899. A class was graduated in 1900 and in each subsequent year. It has a faculty of 36. The course embraces four years of eight months each. Fees: From $75 to $95 per year. The Dean is Dr. D. A. Machlan. The total registration for 1910-11 was 21; graduates, 9. The thirteenth session begins Sept. 14, 1911, and ends May 19, 1912.

MINNESOTA

Minnesota, population 2,075,708, contains one medical college, the College of Medicine and Surgery of the University of Minnesota, situated in Minneapolis. Minneapolis and St. Paul are practically one city, and have a combined population of 516,162.

Minneapolis

University of Minnesota College of Medicine and Surgery.—Organized in 1883; reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital Medical College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged and provision made for elective chairs in didactic materia medica and therapeutics. Students electing these courses on graduation will receive the degree of Doctor of Medicine in Homeopathy. The faculty includes 67 professors and clinical professors and 81 associate professors, assistants, etc., a total of 148. The curriculum covers five years of nine months each, including a year's internship in a hospital. The entrance requirements are two years of university work which must include one year each of physics, general chemistry, qualitative analysis, zoology or botany, and German or French, all in addition to a four-year high school course, including Latin. Total fees for the first and second years are $150 each, and *for the third and fourth years* $100 each; microscopic rental, $1 to $4 per annum. The Dean is Dr. F. F. Wesbrook. The total registration for 1910-11 was 172, including 6 Hamline University students; *the graduates of* 1911 numbered 31, including 6 which were granted degrees by Hamline University. The twenty-fourth session begins Sept. 20, 1911, and ends June 14, 1912.

MISSISSIPPI

Mississippi, population 1,797,114, has two medical colleges. The Medical Department of the University of Mississippi giving only the first two years of the medical course, is located at Oxford, a city of 1,825 inhabitants. The Mississippi Medical College is located at Meridian, population 23,285.

Meridian

Mississippi Medical College, Fifth Street and Twenty-fourth Avenue.—Organized in 1906. The first class graduated in 1907. The faculty numbers 22. The course covers four years of seven months each. The Dean is Dr. T. A. Barber. The total registration for 1910-11 was 95; graduates, 19. The sixth session begins Oct. 2, 1911, and ends April 28, 1912.

Oxford

University of Mississippi Medical Department.—Organized in 1903. Gave *only the first two years of the* medical course until 1909, when a clinical department was organized at Vicksburg. Graduated one class in 1910, when the clinical years of the course were discontinued. *The course covers* four years of eight and a half months each. The faculty numbers 14. The Dean is Dr. W. S. Leathers. The total registration for 1910-11 was 50. The ninth session begins Sept. *21, 1911, and ends June 4, 1912.*

MISSOURI

Missouri, population 3,293,335, has nine medical colleges. St. Louis, population 687,029, contains five of these, viz., St. Louis College of Physicians and Surgeons, American Medical College, the School of Medicine of St. Louis University, Washington University Medical Department and Barnes Medical College. Kansas City, which with Kansas City, Kan., has a total population of 330,662, has two colleges, namely: the Kansas City Hahnemann Medical College and the Eclectic Medical University. Ensworth Medical College is located in St. Joseph, population 77,403. The Department of Medicine of the University of Missouri is at Columbia, a town of 9,662 people.

Columbia

University of Missouri School of Medicine.—Organized at St. Louis in 1845; was discontinued in 1859, but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. The faculty includes 10 professors, 7 assistant professors, lecturers, etc., a total of 17. The course covers two years of nine months each. The entrance requirements are two years of college work, including English, 5 hours; German, 5 hours; general zoology, 5 hours; physics, 5 hours; inorganic chemistry, 5 hours; Elective, 35 hours. Equivalent work in foreign language may be substituted for the English and German. Total fees are $70 each year. The Dean is Dr. C. M. Jackson. Total registration of students for 1910-11 was 34. The next session begins Sept. 21, 1911, and ends June 13, 1912.

Kansas City

Kansas City Hahnemann Medical College, 1020 East Tenth Street.—Organized in 1888 as the Kansas City Homeopathic Medical College. The first class graduated in 1899. In 1902 it united with the Hahnemann Medical College of the Kansas City University, taking the present title The Dean is Dr. William E. Cramer. Total registration for 1910-11 was 42; graduates, 7. The next session begins Sept. 7, 1911, and ends May 6, 1912.

Eclectic Medical University, 1423 Independence Avenue.—Organized at Kansas City, Mo., in 1898 with the present title. Moved to Kansas City, Kan., in 1907, and took the name of Western Eclectic College of Medicine and Surgery. *Returned to Kansas City*, Mo., in 1909 and resumed the present title. First class graduated in 1900. Fees are $100 each year. The Secretary is Dr. D. R. Alexander. The total registration for 1910-11 was 49; graduates, 12. The fourteenth session begins Sept. 4, 1911, and ends May 19, 1912. *Reported not in good standing by the Missouri State Board of Health.*

St. Joseph

The Ensworth Medical College, Seventh and Jule Streets.—Organized in 1876 as the St. Joseph Hospital Medical College. In 1882 it merged with the College of Physicians and Surgeons to form the St. Joseph Medical College In 1888 changed name to Ensworth Medical College. In 1905 merged with the Central Medical College, organized in 1894, to form the Ensworth-Central Medical College. In 1907 the present title was resumed. The faculty numbers 34. The course covers four years of thirty weeks each. The fees for the four years, respectively, are $90, $95, $75 and $95. The Secretary is Dr. T. E. Potter. Total registration for 1910-11 was 56; graduates, 9. The next session begins Oct. 1, 1911, and ends about May 31, 1912.

St. Louis

Washington University Medical School, 1806 Locust Street.—Organized in 1842 as the Medical Department of St. Louis University. In 1855 it was chartered as an independent institution under the name of St. Louis Medical College. The first class graduated in 1843. In 1891 it became the Washington University Medical School. In 1899 it absorbed the Missouri Medical College. The faculty comprises 39 professors, 54 lecturers and instructors, a total of 93. The course is four years of eight months each. The total fees for the four years are, respectively, $140.25, $142.75, $111.25 and $105.25. The Dean is Dr. George Dock. The total registration for 1910-11 was 123; graduates, 34. The next session begins Oct. 2, 1911, and ends June 8, 1912.

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ld Beaumont Hospital Medical College,
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faculty is composed of 37 professors, 75 lecturers and assistants, a total of 112. The curriculum covers four years of eight months each. The total fees are $110 each year. The Dean is Dr. E. P. Lyon. The total registration for 1910-11 was 274; graduates, 50. The next session begins Oct. 2, 1911, and ends May 29, 1912.

St. Louis College of Physicians and Surgeons, Jefferson *Avenue and Gamble Street.—Organized in 1869. Classes graduated* in 1870 and in each subsequent year until 1873, when it suspended. It was reorganized in 1879. Classes graduated in 1880 and subsequent years. The Dean is Dr. Waldo Briggs, 2600 Gamble Street. Total registration for 1910-11 was 52; graduates, 22.

Barnes Medical College, Garrison and Lawton Avenues.—Organized in 1892. Classes graduated in 1893 and in all subsequent years except 1899. The faculty consists of 40 professors and 8 lecturers and assistants, a total of 48. The course covers four years of eight months each. The total fees are $100 each year. The Dean is Dr. A. R. Kieffer. Total registration for 1910-11 was 176; graduates, 52. The next session begins *Sept.* 14, 1911, and ends about May 13, 1912.

American Medical College, 407 South Jefferson Avenue.—Organized in 1873 as an Eclectic College. Eclecticism dropped in 1910. Two classes were graduated each year from 1874 to 1883, inclusive. Since then one class has graduated each year. The course covers four years of nine months each. The fees are $100 each year. The Dean is Dr. James Moores Ball. The total registration for 1910-11 was 46; graduates, 12. The next session begins Sept. 11, 1911, and ends June 2, 1912.

NEBRASKA

Nebraska, population 1,192,214, has three medical colleges: The University of Nebraska College of Medicine and the John A. Creighton Medical College at Omaha, population 124,096, and the Lincoln Medical College at Lincoln, population 43,973.

Lincoln and Omaha

College of Medicine University of Nebraska, Eleventh and R Streets, *Lincoln*, and Twelfth and Pacific Streets, Omaha.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. Two years of collegiate work are required for admission. The first two years are given at Lincoln: the last two at Omaha. The faculty is composed of 29 professors and 38 lecturers and instructors, total 67. The fees are approximately $100 per annum. Total registration for 1910-11 was 72; graduates, 10. The next session begins Sept. 12, 1911, and ends May 31, 1912.

Lincoln

Lincoln Medical College. Eclectic. Corner 13th and P Streets. It is the Medical Department of Cotner University.—Organized in 1890. The first class graduated in 1891. The Secretary is Dr. R. H. Spradling. The total registration for 1910-11 was 42; graduates, 9.

Omaha

John A. Creighton Medical College, Fourteenth and Davenport Streets. It is the Medical Department of Creighton University.—Organized in 1892. The first class graduated in 1895. It *has a faculty of 30 professors and 18 associates, lecturers and assistants*, a total of 48. The course of study embraces four years of eight months each. The total fees for the four years, respectively, are $105, $100, $100 and $105. The Dean is Dr. D. C. Bryant, McCague Building. Total number of students registered in 1910-11 was 188; graduates, 43. The twentieth session begins Sept. 4, 1911, and ends April 27, 1912.

NEW HAMPSHIRE

New Hampshire, population 443,140, has one medical college, located at Hanover, population 1,884.

Hanover

Dartmouth Medical School.—Organized as New Hampshire Medical Institute in 1797. The first class graduated in 1798. It is the Medical Department of Dartmouth College. The faculty is made up of 23 professors and 6 instructors, a total of 29. Two years of collegiate work are required for admission. The course covers four years of eight months each. The fees are $125 each year. The Dean is Dr. John M. Gile. The total registration for 1910-11 was 42; graduates, 11. The work of the first and second years begins with that of the academic department Sept. 21, 1911, and ends June 25, 1912; for the advanced classes the course begins Aug. 1, 1911, and ends April 18, 1912.

NEW YORK

New York State, population 9,113,614, has eleven medical colleges. Eight of these, College of Physicians and Surgeons (Columbia University), Long Island College Hospital, New York Homeopathic Medical College and Hospital, New York Medical College and Hospital for Women, Eclectic Medical College of the City of New York, Cornell University Medical College, the University and Bellevue Hospital Medical College, and Fordham University School of Medicine, are located in New York City, population 4,766,883. Albany Medical College is located in Albany, a city of 100,253 people. The University of Buffalo Medical Department is situated in Buffalo, population 423,715. The College of Medicine, Syracuse University, is in Syracuse, a city of 137,249 inhabitants.

Albany

Albany Medical College, Lancaster and Jay Streets.—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. The faculty is composed of 27 professors and 72 lecturers, assistants, etc., a total of 99. The curriculum covers four years of eight months each. Fees: First year, $130; second year, $145; third year, $120, and fourth year, $130. The Registrar is Dr. Willis G. Tucker. The total registration for 1910-11 was 208; graduates, 42. The eighty-first session begins Sept. 19, 1911, and ends May 14, 1912.

Buffalo

University of Buffalo Medical Department, High Street, near Main.—Organized in 1846. The first [illegible] 347. It absorbed the Medical Department of [illegible] n 1898. The faculty is composed of 36 profess [illegible] assistants, etc., a total of 82. The course covers four years of eight months each. The total fees for the four years, respectively, are $185, $180, $140 and $140. The Dean is Dr. Matthew D. Mann, 37 Allen Street. Total registration for 1910-11 was 223; graduates, 41. The sixty-sixth session begins Sept. 25, 1911, and ends May 31, 1912.

New York

Columbia University College of Physicians and Surgeons, 437 West Fifty-ninth Street.—Organized in 1807 by the regents of the University of the State of New York as their medical department. The first class graduated in 1811. Affiliated with Columbia College in 1814 and was permanently connected in 1860, when it became the Medical Department of Columbia College. That institution became Columbia University in 1891. The faculty is composed of 55 professors and 121 instructors, demonstrators, etc., a total of 176. Two years of collegiate work, including courses in physics, chemistry and biology are required for admission. The work covers four years of eight months each. The Dean is Dr. Samuel W. Lambert. The total fees for the first year are $255; for the second and third, $250, and $275 for the fourth year. Total registration for 1910-11 was 328; graduates, 70. The 104th session begins Sept. 27, 1911, and ends June 5, 1912.

Cornell University Medical College, First Avenue and Twenty-Eighth Street, New York City, and Ithaca.—Organized in 1898. The first class was graduated in 1899. The work of the first year may be taken either in Ithaca or New York. The faculty is composed of 53 professors and 86 assistants, lecturers, instructors, etc., a total of 139. All candidates for admission must be graduates of approved colleges or scientific schools and in addition must have such knowledge of physics, inorganic chemistry and biology as may be obtained in college by a year's course in these subjects when accompanied by laboratory work. Fees: First year, $190; second and third, $185 each, and $200 for the fourth year. The Dean is Dr. William M. Polk. Total registration for 1910-11 was 116; graduates, 55. The fourteenth session begins Sept. 27, 1911, and ends June 12, 1912.

Eclectic Medical College of the City of New York, 239 East Fourteenth Street.—Organized in 1865. The first class graduated in 1867. The faculty consists of 19 professors and 24 lecturers, assistants, etc., a total of 43. The course covers four years of eight months each. The Dean is Dr. Samuel A. Hardy. Total registration for 1910-11 was 77; graduates, 10. The next session begins Sept. 14, 1911, and ends May 1, 1912.

Fordham University School of Medicine, Third and Pelham Avenues.—Organized in 1905. First class graduated in 1909. The faculty consists of 35 professors and 34 lecturers and assistants, a total of 69. The course of instruction covers four years of nine months each. Fees, $200 each year. A year's work in a recognized college of liberal arts is required for admission. The Dean is Dr. James J. Walsh. The total registration for 1910-11 was 94; graduates, 17. The seventh session begins Sept. 20, 1911, and ends June 14, 1912.

Long Island College Hospital, Henry Street, near Atlantic Avenue, Brooklyn.—Organized in 1858. The first class graduated in 1860. It has a faculty of 9 professors and 86 assistants, insructors, etc., a total of 95. The course covers four years of eight months each. Fees: First year, $205; second year, $200; third, $180, and $200 for the fourth year. The Secretary is Dr. Joseph H. Raymond. Total registration, 1910-11, was 407; graduates, 73. The fifty-fourth session begins Sept. 28, 1911, and ends June 3, 1912.

New York Homeopathic Medical Col [illegible] ern Boulevard, between Sixty-third and [illegible] ganized in 1858. Incorporated in 1860 as [illegible] College for the State of New York. The [illegible] in 1869. The first class graduated in 1861. The faculty consists of 32 professors and 28 assistants, lecturers, etc., a total of 60. The Dean is Dr. Royal S. Copeland. Total registration for 1910-11 was 210; graduates, 14. The next session begins Oct. 5, 1911, and ends June 1, 1912.

New York Medical College and Hospital for Women, 17-19 West One Hundred and First Street.—Organized in 1863. The first class graduated in 1864. The faculty consists of 30 professors and 20 lecturers and assistants, a total of 50. The course covers four years of thirty weeks each. The fees for each of the four years, respectively, are $155, $150, $135 and $155. The Dean is Dr. Helen Cooley Palmer. The total registration for 1910-11 was 24; graduates, 4. Names of matriculants not printed in the annual announcement. The forty-ninth session begins Oct. 2, 1911, and ends May 24, 1912

University and Bellevue Hospital Medical College, First Avenue and Twenty-sixth Street.—Organized in 1898 by the union of the New York University Medical College, organized in 1841, and the Bellevue Hospital Medical College, organized in 1861. It is the Medical Department of New York University. The faculty is composed of 35 professors and 139 instructors, etc., in all 174. The course covers four years of eight months each. The fees are $200 per year. The Dean is Dr. Egbert Le Fevre. Total registration for 1910-11 was 511; graduates, 68. The next session begins Sept. 27, 1911, and ends June 1, 1912.

Syracuse

Syracuse University College of Medicine, 307-311 Orange Street.—Organized in 1872 as the College of Physicians and Surgeons of Syracuse University. The present title was assumed in 1875. In 1872 Geneva Medical College was merged with it. The first class was graduated in 1873. The faculty is composed of 15 professors and 45 assistant professors, lecturers and instructors, in all 60. The course covers four years of eight months each. The completion of two years in an accredited college of liberal arts is required for admission. The total fees for each of the four years, respectively, are $181, $191, $151 and $166. The Dean is Dr. John L. Heffron. The total registration for 1910-11 was 109; graduates, 29. The fortieth session begins Oct. 3, 1911, and ends June 12, 1912.

NORTH CAROLINA

North Carolina, population 2,206,287, has four medical schools, two of which give only the first two years of the medical course. The Medical Department of the University of North Carolina is located at Chapel Hill, population 1,200. The Leonard School of Medicine is at Raleigh, population 19,218. The North Carolina College is at Charlotte, population 34,014. Wake Forest School of Medicine is at Wake Forest, population 823.

Chapel Hill

University of North Carolina Medical Department.—Organized in 1890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department at Raleigh. The first class graduated in 1903. A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued. The faculty is composed of 14 professors and 17 lecturers, assistants, etc., a total of 31. The total fees for the two years, respectively, are $114 and $116. The Dean is Dr. G. H. Manning. The total registration for 1910-11 was 51. The twenty-sixth session begins Sept. 5, 1910, and ends May 30, 1911.

Charlotte

North Carolina Medical College, Church and Sixth Streets.—Organized in 1887 at Davidson as the Davidson School of Medicine. It was a preparatory school only, not granting any degrees until 1903, when it was chartered under its present name. The first class was graduated in 1893. Removed to Charlotte in 1907. The faculty numbers 35. The course covers four years of about eight months each. The fees for the four years, respectively, are $97, $95, $80 and $105. The Dean is Dr. Walter O. Nisbet. The total registration for 1910-11 was 112; graduates, 22. The next session begins Sept. 13, 1911, and ends May 3, 1912.

Raleigh

Leonard Medical School.—Colored. This department of Shaw University was established in 1882. Classes were graduated in 1886, 1888 and in all subsequent years. It has a faculty of 14. The course covers four years of seven months each. The total fees for each year are $52; graduation fee, $10. The Dean is Dr. William Moncure. Total registration for 1910-11, was 120; graduates, 24. The thirtieth session begins Sept. 28, 1911, and ends May 9, 1912.

Wake Forest

Wake Forest College School of Medicine.—This school was organized in 1902. The faculty numbers 16. It gives only the first two years of the medical course, which constitute a part of the course for the B.S. degree. Each annual course extends over nine months. The fees for the first year are $105 and $115 for the second. The Dean is Dr. John Brewer Powers. The total registration for 1910-11 was 38. The tenth session begins Sept. 5, 1911, and ends May 15, 1912.

NORTH DAKOTA

North Dakota, population 577,056, has one medical college, the College of Medicine of the State University of North Dakota, which is situated at University near Grand Forks, a city of 12,478 people. It gives only the first two years of the medical course.

University

University of North Dakota College of Medicine.—Organized in 1905. The faculty is composed of 7 professors and 18 instructors, a total of 25. The course consists of two years' academic work and two years of medical college subjects, occupying nine months in a hospital. The entrance requirements are two years of university work which must include one year each of physics, general chemistry, qualitative analysis, zoology or botany, and German or French, all in addition to a four-year high school course, including Latin. Total fees for the first and second years are $150 each, and for the third and fourth years $100 each; microscopic rental, $1 to $4 per annum. The Dean is Dr. F. F. Wesbrook. The total registration for 1910-11 was 172, including 6 Hamline University students; the graduates of 1911 numbered 31, including 6 which were granted degrees by Hamline University, The twenty-fourth session begins Sept. 20, 1911, and ends June 14, 1912.

MISSISSIPPI

Mississippi, population 1,797,114, has two medical colleges. The Medical Department of the University of Mississippi giving only the first two years of the medical course, is located at Oxford, a city of 1,825 inhabitants. The Mississippi Medical College is located at Meridian, population 23,285.

Meridian

Mississippi Medical College, Fifth Street and Twenty-fourth Avenue.—Organized in 1906. The first class graduated in 1907. The faculty numbers 22. The course covers four years of seven months each. The Dean is Dr. T. A. Barber. The total registration for 1910-11 was 95; graduates, 19. The sixth session begins Oct. 2, 1911, and ends April 28, 1912.

Oxford

University of Mississippi Medical Department.—Organized in 1903. Gave only the first two years of the medical course until 1909, when a clinical department was organized at Vicksburg. Graduated one class in 1910, when the clinical years of the course were discontinued. The course covers four years of eight and a half months each. The faculty numbers 14. The Dean is Dr. W. S. Leathers. The total registration for 1910-11 was 50. The ninth session begins Sept. 21, 1911, and ends June 4, 1912.

MISSOURI

Missouri, population 3,293,335, has nine medical colleges. St. Louis, population 687,029, contains five of these, viz., St. Louis College of Physicians and Surgeons, American Medical College, the School of Medicine of St. Louis University, Washington University Medical Department and Barnes Medical College. Kansas City, which with Kansas City, Kan., has a total population of 330,662, has two colleges, namely: the Kansas City Hahnemann Medical College and the Eclectic Medical University. Ensworth Medical College is located in St. Joseph, population 77,403. The Department of Medicine of the University of Missouri is at Columbia, a town of 9,662 people.

Columbia

University of Missouri School of Medicine.—Organized at St. Louis in 1845; was discontinued in 1859, but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. The faculty includes 10 professors, 7 assistant professors, lecturers, etc., a total of 17. The course covers two years of nine months each. The entrance requirements are two years of college work, including English, 5 hours; German, 5 hours; general zoology, 5 hours; physics, 5 hours; inorganic chemistry, 5 hours; Elective, 35 hours. Equivalent work in foreign language may be substituted for the English and German. Total fees are $70 each year. The Dean is Dr. C. M. Jackson. Total registration of students for 1910-11 was 34. The next session begins Sept. 21, 1911, and ends June 13, 1912.

Kansas City

Kansas City Hahnemann Medical College, 1020 East Tenth Street.—Organized in 1888 as the Kansas City Homeopathic Medical College. The first class graduated in 1899. In 1902 it united with the Hahnemann Medical College of the Kansas City University, taking the present title. The Dean is Dr. William E. Cramer. Total registration for 1910-11 was 42; graduates, 7. The next session begins Sept. 7, 1911, and ends May 6, 1912.

Eclectic Medical University, 1423 Independence Avenue.—Organized at Kansas City, Mo., in 1898 with the present title. Moved to Kansas City, Kan., in 1907, and took the name of Western Eclectic College of Medicine and Surgery. Returned to Kansas City, Mo., in 1909 and resumed the present title. First class graduated in 1900. Fees are $100 each year. The Secretary is Dr. D. R. Alexander. The total registration for 1910-11 was 49; graduates, 12. The fourteenth session begins Sept. 4, 1911, and ends May 19, 1912. *Reported not in good standing by the Missouri State Board of Health.*

St. Joseph

The Ensworth Medical College, Seventh and Jule Streets.—Organized in 1876 as the St. Joseph Hospital Medical College. In 1882 it merged with the College of Physicians and Surgeons to form the St. Joseph Medical College In 1888 changed name to Ensworth Medical College. In 1905 merged with the Central Medical College, organized in 1894, to form the Ensworth-Central Medical College. In 1907 the present title was resumed. The faculty numbers 34. The course covers four years of thirty weeks each. The fees for the four years, respectively, are $90, $95, $75 and $95. The Secretary is Dr. T. E. Potter. Total registration for 1910-11 was 56; graduates, 9. The next session begins Oct. 1, 1911, and ends about May 31, 1912.

St. Louis

Washington University Medical School, 1806 Locust Street.—Organized in 1842 as the Medical Department of St. Louis University. In 1855 it was chartered as an independent institution under the name of St. Louis Medical College. The first class graduated in 1843. In 1891 it became the Washington University Medical School. In 1899 it absorbed the Missouri Medical College. The faculty comprises 39 professors, 54 lecturers and instructors, a total of 93. The course is four years of eight months each. The total fees for the four years are, respectively, $140.25, $142.75, $111.25 and $105.25. The Dean is Dr. George Dock. The total registration for 1910-11 was 123; graduates, 34. The next session begins Oct. 2, 1911, and ends June 8, 1912.

St. Louis University School of Medicine, 1402 South Grand Avenue. Organized in 1901 by union of Marion-Sims Medical College, organized in 1890, and Beaumont Hospital Medical College, organized in 1886. It became the Medical Department of St. Louis University in 1903. The faculty is composed of 37 professors, 75 lecturers and assistants, a total of 112. The curriculum covers four years of eight months each. The total fees are $110 each year. The Dean is Dr. E. P. Lyon. The total registration for 1910-11 was 274; graduates, 50. The next session begins Oct. 2, 1911, and ends May 29, 1912.

St. Louis College of Physicians and Surgeons, Jefferson Avenue and Gamble Street.—Organized in 1869. Classes graduated in 1870 and in each subsequent year until 1873, when it suspended. It was reorganized in 1879. Classes graduated in 1880 and subsequent years. The Dean is Dr. Waldo Briggs, 2600 Gamble Street. Total registration for 1910-11 was 52; graduates, 22.

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NEBRASKA

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Lincoln and Omaha

College of Medicine University of Nebraska, Eleventh and R Streets, Lincoln, and Twelfth and Pacific Streets, Omaha.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. Two years of collegiate work are required for admission. The first two years are given at Lincoln; the last two at Omaha. The faculty is composed of 29 professors and 38 lecturers and instructors, total 67. The fees are approximately $100 per annum. Total registration for 1910-11 was 72; graduates, 10. The next session begins Sept. 12, 1911, and ends May 31, 1912.

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NEW HAMPSHIRE

New Hampshire, population 443,140, has one medical college, located at Hanover, population 1,884.

Hanover

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NEW YORK

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Buffalo

University of Buffalo Medical Department, High Street, near Main.—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898. The faculty is composed of 36 professors and 46 lecturers, assistants, etc., a total of 82. The course covers four years of eight months each. The total fees for the four years, respectively, are $185, $180, $140 and $140. The Dean is Dr. Matthew D. Mann, 37 Allen Street. Total registration for 1910-11 was 223; graduates, 41. The sixty-sixth session begins Sept. 25, 1911, and ends May 31, 1912.

New York

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ganized in 1858. Incorporated in 1860 as
College for the State of New York. The
in 1869. The first class graduated in 1861. The faculty consists of 32 professors and 28 assistants, lecturers, etc., a total of 60. The Dean is Dr. Royal S. Copeland. Total registration for 1910-11 was 210; graduates, 14. The next session begins Oct. 5, 1911, and ends June 1, 1912.

New York Medical College and Hospital for Women, 17-19 West One Hundred and First Street.—Organized in 1863. The first class graduated in 1864. The faculty consists of 30 professors and 20 lecturers and assistants, a total of 50. The course covers four years of thirty weeks each. The fees for each of the four years, respectively, are $155, $150, $135 and $155. The Dean is Dr. Helen Cooley Palmer. The total registration for 1910-11 was 24; graduates, 4. Names of matriculants not printed in the annual announcement. The forty-ninth session begins Oct. 2, 1911, and ends May 24, 1912

University and Bellevue Hospital Medical College, First Avenue and Twenty-sixth Street.—Organized in 1898 by the union of the New York University Medical College, organized in 1841, and the Bellevue Hospital Medical College, organized in 1861. It is the Medical Department of New York University. The faculty is composed of 35 professors and 139 instructors, etc., in all 174. The course covers four years of eight months each. The fees are $200 per year The Dean is Dr. Egbert Le Fevre. Total registration for 1910-11 was 511; graduates, 68. The next session begins Sept 27, 1911, and ends June 1, 1912.

Syracuse

Syracuse University College of Medicine, 307-311 Orange Street.—Organized in 1872 as the College of Physicians and Surgeons of Syracuse University. The present title was assumed in 1875. In 1872 Geneva Medical College was merged with it. The first class was graduated in 1873. The faculty is composed of 15 professors and 45 assistant professors, lecturers and instructors, in all 60. The course covers four years of eight months each. The completion of two years in an accredited college of liberal arts is required for admission. The total fees for each of the four years, respectively, are $181, $191, $151 and $166. The Dean is Dr. John L. Heffron. The total registration for 1910-11 was 109; graduates, 29. The fortieth session begins Oct. 3, 1911, and ends June 12, 1912.

NORTH CAROLINA

North Carolina, population 2,206,287, has four medical schools, two of which give only the first two years of the medical course. The Medical Department of the University of North Carolina is located at Chapel Hill, population 1,200. The Leonard School of Medicine is at Raleigh, population 19,218. The North Carolina College is at Charlotte, population 34,014. Wake Forest School of Medicine is at Wake Forest, population 823.

Chapel Hill

University of North Carolina Medical Department.—Organized in 1890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department at Raleigh. The first class graduated in 1903. A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued. The faculty is composed of 14 professors and 17 lecturers, assistants, etc., a total of 31. The total fees for the two years, respectively, are $114 and $116. The Dean is Dr. G. H. Manning. The total registration for 1910-11 was 51. The twenty-sixth session begins Sept. 5, 1910, and ends May 30, 1911.

Charlotte

North Carolina Medical College, Church and Sixth Streets.—Organized in 1887 at Davidson as the Davidson School of Medicine. It was a preparatory school only, not granting any degrees until 1903, when it was chartered under its present name. The first class was graduated in 1893. Removed to Charlotte in 1907. The faculty numbers 35. The course covers four years of about eight months each. The fees for the four years, respectively, are $97, $95, $80 and $105. The Dean is Dr. Walter O. Nisbet. The total registration for 1910-11 was 112; graduates, 22. The next session begins Sept. 13, 1911, and ends May 3, 1912.

Raleigh

Leonard Medical School.—Colored. This department of Shaw University was established in 1882. Classes were graduated in 1886, 1888 and in all subsequent years. It has a faculty of 14. The course covers four years of seven months each. The total fees for each year are $52; graduation fee, $10. The Dean is Dr. William Moncure. Total registration for 1910-11, was 120; graduates, 24. The thirtieth session begins Sept. 28, 1911, and ends May 9, 1912.

Wake Forest

Wake Forest College School of Medicine.—This school was organized in 1902. The faculty numbers 16. It gives only the first two years of the medical course, which constitute a part of the course for the B.S. degree. Each annual course extends over nine months. The fees for the first year are $105 and $115 for the second. The Dean is Dr. John Brewer Powers. The total registration for 1910-11 was 38. The tenth session begins Sept. 5, 1911, and ends May 15, 1912.

NORTH DAKOTA

North Dakota, population 577,056, has one medical college, the College of Medicine of the State University of North Dakota, which is situated at University near Grand Forks, a city of 12,478 people. It gives only the first two years of the medical course.

University

University of North Dakota College of Medicine.—Organized in 1905. The faculty is composed of 7 professors and 18 instructors, a total of 25. The course consists of two years' academic work and two years of medical college subjects, occupying nine months each year. The total fees for each of the medical years are $50. The Dean is M. A. Brannon, A.M. The total registration for 1910-11 was 39. The seventh session begins Sept. 19, 1911, and ends June 14, 1912.

OHIO

Ohio, population 4,767,121, has six medical colleges. Two of these, the Ohio-Miami Medical College of the University of Cincinnati and the Eclectic Medical College, are located in Cincinnati, a city of 364,463 inhabitants. Cleveland, population 560,663, contains two medical schools: Western Reserve Medical College and the Cleveland-Pulte Medical College. Columbus, population 181,548, contains one medical college, the Starling-Ohio Medical College. Toledo, with 168,497 people, has one medical school, the Toledo Medical College.

Cincinnati

The Ohio-Miami Medical College of the University of Cincinnati.—Organized in 1909 by the union of the Ohio Medical College (founded in 1819) with the Miami Medical College (founded in 1852). The Ohio Medical College became the Medical Department of the University of Cincinnati, April 26, 1896. Under a similar agreement, March 2, 1909, Miami Medical College also merged into the University, when the present title was taken. The faculty consists of 19 professors, 98 associates, assistants, etc., a total of 117. The course covers four years of eight months each. The fees are a tuition fee of $125 a year; a matriculation fee of $5, payable but once, and a graduation fee of $25. The Dean is Dr. Paul G. Woolley. The total registration for 1910-11 was 149; graduates, 38. The next session begins Sept. 25, 1911, and ends June 1, 1912.

Eclectic Medical College, 630 West Sixth Street.—Organized in 1832 at Worthington as the Worthington Medical College. Removed to Cincinnati in 1843. In 1845 it was chartered as the Eclectic Medical Institute. In 1857 the American Medical College, organized in 1839, was merged into it, and in 1859 the Eclectic College of Medicine and Surgery, organized in 1856, merged into it. In 1910 it assumed its present title. Classes were graduated in 1833 and in all subsequent years except 1839 to 1843, inclusive. It has a faculty of 14 professors and 13 lecturers and assistants, a total of 26. The course covers four years of thirty weeks each. The fees are $100 for each year. The Dean is Dr. Rolla L. Thomas, 792 East McMillan Street. Total registration for 1910-11 was 95; graduates, 27. The next session begins Sept. 18, 1911, and ends May 8, 1912.

Cleveland

Cleveland-Pulte Medical College, Prospect Avenue and Huron Road.—Homeopathic.—Organized in 1849 as the Western College of Homeopathic Medicine. The first class graduated in 1853. In 1857 it became the Western Homeopathic College and in 1870 it became the Homeopathic Hospital College when the Homeopathic Medical College for Women, organized in 1868, merged into it. In 1894 it became the Cleveland University of Medicine and Surgery. In 1898 it merged with the Cleveland Medical College, organized in 1890, and assumed the title of Cleveland Homeopathic Medical College. In 1910 Pulte Medical College of Cincinnati merged into it and the present title was assumed. The faculty numbers 59. The fees are $125 each year. The Dean is Dr. George H. Quay. Total registration for 1910-11 was 81; graduates, 13. The next session begins Sept. 20, 1911, and ends May 16, 1912.

Western Reserve University, Medical Department, St. Clair Avenue and East Ninth Street.—Organized in 1843 as the Cleveland Medical College. The first class graduated in 1845. It assumed the present title in 1881. In 1910 it absorbed the Cleveland College of Physicians and Surgeons. Under the terms of the merger the Ohio Wesleyan University will grant degrees to students enrolled in the College of Physicians and Surgeons prior to the merger. The faculty includes 40 professors and 34 lecturers, assistants, etc., a total of 74. The curriculum embraces four years of eight and one-half months each. Three years of college work are required for admission to first year of medical course. The total fees for the first year are $142 and $135 each for the other three years. The Dean is Dr. B. L. Millikin, 1110 Euclid Avenue. The total registration for 1910-11 was 171, including 64 students of the College of Physicians and Surgeons; there were 36 graduates in 1911, including 22 from the latter school. The sixty-ninth session begins Oct. 1, 1911, and ends June 13, 1912.

Columbus

Starling-Ohio Medical College, Buttles Avenue and Park Street.—Organized in 1907 by the union of Starling Medical College (organized 1834) with the Ohio Medical University (organized 1890). The faculty consists of 27 professors and 37 lecturers, demonstrators, etc., a total of 64. The course covers four years of eight months each. Matriculation, $5; tuition, $135 each year. The Dean is Dr. W. J. Means. The total registration for 1910-11 was 252; graduates, 51. The next session begins Sept. 20, 1911, and ends May 22, 1912.

Toledo

Toledo Medical College, Cherry and Page Streets.—Organized in 1883. The first class graduated in 1883. The faculty numbers 48. The curriculum embraces four years of eight months each. The fees are $120 for each year, with a matriculation fee of $5, payable once. The Secretary is Dr. E. I. McKesson. The total registration for 1910-11 was 40; graduates, 8. The next session begins Oct. 2, 1911, and ends May 24, 1912.

OKLAHOMA

Oklahoma, population 1,657,155, has one medical college, the School of Medicine of the State University of Oklahoma. The work of the first and second years is given in the academic laboratories at Norman, a city of 3,040 inhabitants. The work of the third and fourth years is given in Oklahoma City, which has a population of 64,205 and which is eighteen miles north of Norman.

Norman and Oklahoma City

State University of Oklahoma School of Medicine.—Organized in 1900. Gave only the first two years of the medical course until 1910, when a clinical department was established at Oklahoma City. It has a faculty of 26 professors and 14 instructors, a total of 40. The course is four years of nine months each. An optional course of six years is offered for the degrees of B.S., and M.D. The total fees for the four years, respectively, are $50, $30, $100 and $105. The Secretary is Dr. Walter L. Capshaw, Norman. The total registration for the combined schools for 1910-11 was 63; graduates, 15. The twelfth session begins Sept. 19, 1911, and ends June 13, 1912.

OREGON

Oregon, population 672,765, has two medical colleges: The Medical Department of Willamette University, located at Salem, a city of 14,094 people, and the University of Oregon Medical Department, in Portland, a city of 207,214 population.

Portland

University of Oregon Medical Department, Lovejoy and Twenty-third Streets.—Organized in 1887. The first class graduated in 1888. It has a faculty of 14 professors and 36 lecturers, assistants, etc., a total of 50. The course is four years of eight months each. Fees: First year, $142.50; second, $137.50; third, $100.50, and for the fourth, $57.50. The Dean is Dr. Simeon E. Josephi. The total registration for 1910-11 was 72; graduates, 16. The twenty-fifth session begins Sept. 15, 1911, and ends May 15, 1912.

Salem

Medical Department Willamette University.—Organized in 1865 at Salem. Classes were graduated in 1867 and in all subsequent years except 1896. It moved to Portland in 1878, but returned to Salem in 1895. The faculty numbers 20. The course is four years of eight months each. The fees for the four years, respectively, are $122.50, $110, $87.50 and $57.50. The Dean is Dr W. H. Byrd. The total registration for 1910-11 was 47; graduates, 3. The next session begins Oct. 3, 1911, and ends June 1, 1912.

PENNSYLVANIA

Pennsylvania, population 7,665,111, has seven medical colleges. Of these Philadelphia, having a population of 1,549,008, contains six, as follows: University of Pennsylvania Department of Medicine, Jefferson Medical College, Hahnemann Medical College, Woman's Medical College of Pennsylvania, Medico-Chirurgical College of Philadelphia and Temple University Department of Medicine. The other school, the Medical Department of the University of Pittsburgh, is situated in Pittsburgh, a city of 533,905.

Philadelphia

University of Pennsylvania Department of Medicine, Thirty-sixth Street and Hamilton Walk.—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772-79, inclusive. The original title was the Department of Medicine, College of Philadelphia, which was changed to the present title in 1791. It granted the first medical diploma issued in America. The faculty is made up of 25 professors, 20 associate adjunct and assistant professors and 121 demonstrators, lecturers, associates, instructors, etc., a total of 166. The requirements for admission are the equivalent of work prescribed for the first two years in recognized colleges, which work must include a knowledge of physics, chemistry and general biology or zoology with laboratory work as specified by the College Entrance Examination Board and, in addition, two foreign languages, one of which must be French or German. The course embraces study of four years of 34 weeks each. The total fees for each of the four years, respectively, are $218, $213, $210 and $211.50. The Dean is Dr. Allen J. Smith. Total registration for 1910-11 was 445; graduates, 151. The next session begins Sept. 29, 1911, and ends June 10, 1912.

Jefferson Medical College, Tenth and Walnut Streets.—Organized in 1825 as the Medical Department of Jefferson College. class graduated in 1826. The present title It has a faculty of 33 professors and 97 etc., a total of 130. The course of study covers graded work of four years of eight and a half months each. An optional fifth year is offered. The tuition is $180 a year, with a matriculation fee of $5, paid but once. The Dean is Dr. James W. Holland. The total registration for 1910-11 was 559; graduates, 127. The eighty-seventh session begins Sept. 25, 1911, and ends June 3, 1912.

Medico-Chirurgical College of Philadelphia, Cherry Street, between Seventeenth and Eighteenth Streets.—Organized in 1881. The first class graduated in 1882. The faculty is composed of 35 professors and 69 lecturers, assistants, etc., a total of 104: The work embraces four years of eight months each. The fees for each of the four years, respectively, are $162.50, $159, $155.50 and $150. The Dean is Dr. Seneca Egbert. The total registration for 1910-11 was 462; graduates, 74. The thirty-first session begins Sept. 25, 1911, and ends June 7, 1912.

Woman's Medical College of Pennsylvania, Twenty-first and N. College Avenue.—Organized in 1850. Classes were graduated in 1851 and in all subsequent years except 1861 and 1862. It has a faculty of 10 professors and 50 assistants, lecturers, etc., in all 60. The curriculum covers four years of eight months each. Fees, about $145 each year. The Dean is Dr. Clara Marshall. The total registration for 1910-11 was 110; graduates, 32. The sixty-second session begins Sept. 21, 1911, and ends May 31, 1912.

Hahnemann Medical College and Hospital.—Organized in 1848 as the Homeopathic Medical College of Pennsylvania. In 1869 it united with the Hahnemann Medical College of Philadelphia, taking the present title. The first class graduated in 1849. It has a faculty of 13 professors and 67 lecturers, instructors, etc., in all 80. The work covers four years of eight and a half months each. Fees: For each year, $150; matriculation, $5. The Dean is Dr. William B. Van Lennep. The total registration for the college year 1910-11 was 135; graduates, 37. The sixty-fourth session begins Sept. 27, 1911, and ends June 6, 1912.

The Temple University Department of Medicine, Eighteenth and Buttonwood Streets.—Organized in 1901. The first class graduated in 1904. The faculty numbers 84. It gives a four-year day course. The fees are $150 per year. The Dean is Dr. Frank C. Hammond. The total registration for 1910-11 was 91; graduates, 23. The eleventh session begins Sept. 15, 1911, and ends June 3, 1912.

Pittsburgh

University of Pittsburgh Medical Department, Brereton Avenue and Thirtieth Street.—Organized in 1886 as the Western Pennsylvania Medical College. Became the Medical Department of the University of Pittsburgh in 1909. The first class graduated in 1887. The faculty is composed of 43 professors and 59 associates, assistants, etc., 102 in all. The course of study embraces four years of eight and a half months each. The total fees for each of the four years, respectively, are $235, $220, $155 and $160. The Dean is Dr. Thomas S. Arbuthnot. The total registration for 1910-11 was 240; graduates, 55. The twenty-eighth session begins Sept. 25, 1911, and ends June 12, 1912.

PHILIPPINE ISLANDS

The Philippine Archipelago, having a population of 7,635,436, has one medical college, the University of the Philippines College of Medicine and Surgery. It is located in the City of Manila, which in 1903 had a population of 219,928.

Manila

University of the Philippines College of Medicine and Surgery, Manila.—Organized in 1907 as the Philippine Medical School, under the support of the Philippines Commission. Present title in 1910. The faculty numbers 42. The course extends over five years of nine months each. The requirements for admission conform to the standards in the United States and Great Britain. The Dean is Dr. Paul C. Freer. The total registration for 1910-11 was 65; graduates, 3. The fifth session begins June 1, 1911, and ends March 4, 1912.

SOUTH CAROLINA

South Carolina, population 1,515,400, has one medical college, situated in Charleston, a city of 58,833 people.

Charleston

The Medical College of the State of South Carolina.—Founded in 1823 as the Medical College of South Carolina. In 1832 it was chartered with the present title. Classes were graduated in 1825 and in all subsequent years except 1861 to 1865 inclusive. It has a faculty of 11 professors and 30 lecturers, instructors, etc., a total of 41. The course covers four years of eight months each. The total fees each year are $100. The Dean is Dr. Robert Wilson. Total enrolment for 1910-11 was 203; graduates, 49. The eighty-ninth session begins Oct. 2, 1911, and ends June 3, 1912.

SOUTH DAKOTA

South Dakota, population 583,888, has one medical college, the University of South Dakota College of Medicine, located at Vermilion, a city of 2,147 people.

Vermilion

University of South Dakota College of Medicine.—Organized in 1907. Offers only the first two years of the medical course. Two years work in a college of liberal arts is required for admission. The faculty numbers 9. The Dean is Christian P. Lommen, B.S. The total registration for 1910-11 was 7. The fifth session begins Sept. 18, 1911, and ends June 6, 1912.

TENNESSEE

Tennessee, population 2,184,789, has six medical colleges. Of these Vanderbilt University Medical Department and Meharry Medical College are situated in Nashville, a city with a population of 106,476. Knoxville, population 37,758, contains one college, the Tennessee Medical College. Memphis Hospital Medical College, the Medical Department of the University of Tennessee and the University of West Tennessee are located in Memphis, population 136,363.

Knoxville

Tennessee Medical College, Cleveland Street and Dameron Avenue. It is the Medical Department of Lincoln Memorial University. Organized in 1889. The first class graduated in 1890. It has a faculty of 20 professors and 7 assistants, a total of 27. The curriculum covers four years of seven months each. Fees: First three years, each $100; fourth year, $125; matriculation fee, $5; graduation fee, $25. The total registration for 1910-11 was 101; graduates, 24. The twenty-second session begins Oct. 2, 1911, and ends May 9, 1912.

Memphis.

University [illegible] cal Department.—Organized 1876 as Nash [illegible] Became Medical Department University of [illegible] class graduated 1877 and a class graduated each subsequent year. In 1909 it united with the Medical Department of the University of Nashville to form the Universities of Nashville and Tennessee. Union dissolved in 1911 and this college removed to Memphis, where it united with the College of Physicians and Surgeons. [illegible] n the combined schools in 1910-11 was 308; [illegible] next session begins Sept. 13, 1911, and ends [illegible]

Memphis Hospital Medical College, Marshall Avenue and Myrtle Street.—Organized in 1880. The first class graduated in 1881. It has a faculty of 12 professors and 31 lecturers, instructors, etc., a total of 43. The course covers four years of thirty weeks each. The total fees for each of the first three years are $125, for the fourth, $150. The Dean is Dr. W. B. Rogers. Total registration for 1910-11 was 379; graduates, 97. The thirty-second annual session will begin Oct. 12, 1911, and close May 18, 1912.

Medical Department of the University of West Tennessee. Colored, 1190 South Phillips Place.—Organized in 1900. The first class graduated in 1904 and a class graduated each subsequent year. It has a faculty of 16. The course is four years of thirty weeks each. The fees are $50 per year; graduation $10 extra. The Dean is Dr. M. V. Lynk. Registration for 1910-11 was 35; graduates, 8. The twelfth session begins Sept. 14, 1911, and ends May 1, 1912.

Nashville

Vanderbilt University Medical Department, Elm Street and Fifth Avenue.—This school was founded in 1874. The first class graduated in 1875. The faculty consists of 20 professors and 30 lecturers, a total of 50. The course covers four years of eight months each. The total fees for each of the first three years are $125, and for the fourth year, $150. The Dean is Dr. William L. Dudley. The total registration for 1910-11 was 279; graduates, 40. The thirty-eighth session begins Sept. 20, 1911, and ends May 15, 1912.

Meharry Medical College, Colored, Maple and Chestnut Streets.—This school was organized in 1876 and is the Medical Department of Walden University. The faculty is made up of 12 professors and 14 instructors, demonstrators, etc., 26 in all. The work embraces four years of thirty-two weeks each. The total fees for each of the four years, respectively, are $56, $59, $57 and $65. The Dean is Dr. G. W. Hubbard. Total registration for 1910-11 was 299; graduates, 56. The thirty-sixth session begins Sept. 13, 1911, and ends April 24, 1912.

TEXAS

Texas, population 3,096,542, has four medical colleges. The University of Texas Department of Medicine is located at Galveston, a city of 36,981 inhabitants. The Medical Department of Fort Worth University is at Fort Worth, population 73,312. The Baylor University College of Medicine and the Medical Department of Southwestern University are situated in Dallas, population 92,104.

Dallas

Baylor University College of Medicine, 435-37 South Ervay Street.—Organized in 1900 as the University of Dallas Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University at Waco. It acquired the charter of Dallas Medical College in 1904. The first class graduated in 1901. The faculty numbers 28. The course is four years of seven months each. The fees are $100 each year; matriculation fee of $5, paid bu [illegible], $25. The Dean is Dr. E. H. Cary. Total [illegible] 1 was 90; graduates, 17. The twelfth sessio [illegible], and ends May 21, 1912.

Southwestern University Medical College.—Organized in 1903. The first class graduated in 1904. It has a faculty of 19 professors and 13 instructors, assistants, etc., a total of 32. The course of instruction covers four years of eight months each. The fees for the four years, respectively, are $110, $105, $100 and $125. The Dean is Dr. John O. McReynolds. Total registration for 1910-11 was 69; graduates, 17. The ninth session begins Oct. 2, 1911, and ends May 25, 1912.

Fort Worth

Fort Worth School of Medicine, Medical Department of Texas Christian University, Calhoun and Fift [illegible] in 1894 as the Medical Department of Fort [illegible] The first class graduated in 1895. Present [illegible] s a faculty of 17 professors and 32 lecturers, assistants, etc., in all 49. The course covers four years of seven and a half months each. The total fees for each of the four years, respectively, are $114, $113, $108 and $125. The Dean is Dr. W. R. Thompson. The total registration for the college year 1910-11 was 90; graduates, 28. The eighteenth session begins Sept. 25, 1911, and ends May 16, 1912.

Galveston

University of Texas Department of Medicine, Avenue B and Ninth Street.—Organized in 1891. The first class graduated in 1892. It has a faculty of 12 professors and 13 lecturers, a total of 25. The curriculum embraces four years of eight months each. The entrance requirement is one year of collegiate work in addition to a four-year high school education. The total fees for the four years, respectively, are $61, $31, $21 and $6. The Dean is Dr. William S. Carter. Total registration for 1910-11 was 177; graduates, 53. The twenty-first session begins Oct. 2, 1911, and ends May 31, 1912.

UTAH

Utah, population 373,351, has one medical college, the Medical Department of the University of Utah, situated at Salt Lake City, which has 92,777 people.

Salt Lake City

University of Utah School of Medicine.—Organized in 1906. Gives only the first two years of the medical course. Each course covers thirty-six weeks. Two years of collegiate work are required for admission. The medical faculty consists of 9 professors and 10 lecturers and assistants, a total of 19. The fees are $55 each year. The Acting-dean is Dr. Charles T. Vorhies. Total registration for 1910-11 was 19. The fifth session begins September 18, 1911, and ends June 1, 1912.

VERMONT

Vermont, population 355,956, has one medical school, located at Burlington, a town of 20,468 people.

Burlington

University of Vermont College of Medicine, Pearl Street, College Park.—Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. The faculty numbers 54. The course of study covers four years of thirty weeks each. The total fees for each of the first three years are $135, and $165 for the fourth year. The Secretary is Dr. James N. Jenne. The total registration for 1910-11 was 186; graduates, 40. The next session begins Oct. 30, 1911, and ends June 27, 1912.

VIRGINIA

Virginia, population 2,061,612, has three medical colleges, one, the Medical Department of the University of Virginia, situated in Charlottesville, population 6,765, and two, the Medical College of Virginia and the University College of Medicine, in Richmond, population 127,628.

Charlottesville

University of Virginia Department of Medicine.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. It has a faculty of 16 professors and 17 lecturers, instructors, assistants, etc., a total of 33. The requirements for admission are the completion of a four years' high school course, or its equivalent, and a year of college work devoted to chemistry, physics and biology. Total fees each year are $150. The Dean is Dr. R. H. Whitehead. The total registration for 1910-11 was 79; graduates, 20. The next session begins Sept. 14, 1911, and ends June 12, 1912.

Richmond

Medical College of Virginia, Marshall and College Streets.—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. Classes were graduated in 1840 and in all subsequent years. It has a faculty of 16 professors and 38 lecturers, instructors, etc., a total of 54. The requirement for admission is a full four-year high school education. The course embraces four years of eight months each. Fees, $100 each year; graduation fee, $30. The Dean is Dr. Christopher Tompkins. The total registration for the college year 1910-11 was 210; graduates, 40. The seventy-fourth session begins Sept. 12, 1911, and ends May 29, 1912.

University College of Medicine, Twelfth and Clay Streets.—Organized in 1893. The first class graduated in 1894. It has a faculty of 65. Curriculum covers four years of eight months each. The total fees are $100 for each year. The Dean is Dr. A. L. Gray. The total registration for the college year 1910-11 was 149; graduates, 33. The nineteenth session begins Sept. 12, 1911, and ends May 24, 1912.

WISCONSIN

Wisconsin, population 2,333,860, has three medical colleges, the Medical Department of the University of Wisconsin, which teaches the first two years of the medical course, and is located at Madison, a city of 25,531 people, and the Milwaukee Medical College and Wisconsin College of Physicians and Surgeons, situated in Milwaukee, a city of 373,857 people.

Madison

University of Wisconsin College of Medicine.—Organized in 1907. Gives only the first two years of the medical course. For matriculation at least two years in a college of arts and science or an equivalent training are required, including two years of Latin, a reading knowledge of French and German, and at least a year's work in physics, chemistry and biology. It has a faculty of 12 professors and 4 lecturers, instructors, etc., a total of 16. The Dean is Dr. Charles R. Bardeen. The registration for 1910-11 was 48. The fourth session begins Sept. 27, 1911, and ends June 22, 1912.

Milwaukee

Milwaukee Medical College, Ninth and Wells Streets.—Organized in 1894. The first class graduated in 1895. It became the Medical Department of the Marquette University in 1907. It has a faculty of 33 professors and 29 lecturers, instructors, etc., a total of 62. The course covers four years of eight months each. The total fees are $135 each for the first three years and $150 for the fourth year. The Dean is Dr. Warren B. Hill. The total registration for 1910-11 was 253; graduates, 48. The eighteenth session begins Oct. 3, 1911, and ends May 27, 1912.

Wisconsin College of Physicians and Surgeons, Fourth Street and Reservoir Avenue.—Organized in 1893. The first class graduated in 1894. In 1898 it became the medical department of Carroll College. It has a faculty of 20 professors and 34 lecturers, instructors, etc., a total of 54. The curriculum includes four years of eight months each. Total fees each year for the four years, respectively, are $145, $135, $130 and $145. The Dean is Dr. Thomas C. Phillips. The total registration for 1910-11 was 55; graduates, 16. The twentieth session begins Oct. 2, 1911, and ends May 24, 1912.

CANADA

Manitoba

Manitoba Medical College, Winnipeg.—It is the Medical Faculty of the University of Manitoba. Organized in 1883, first class graduated in 1886 and a class graduated each subsequent year. The faculty numbers 50. The fees are $155 for the first year and $150 for each subsequent year. The entire course covers five years. The Dean is Dr. H. H. Chown, 263 Broadway, Winnipeg. Total registration for 1910-11 was 137; graduates, 18. The next session begins Oct. 1, 1911, and ends May 1, 1912.

Nova Scotia

Dalhousie Medical College, Medical Faculty of Dalhousie University, Halifax.—Organized 1867 as Halifax School of Medicine, united same year with Dalhousie University, separately incorporated 1876, affiliated with Dalhousie University 1885, first class graduated 1872 and a class graduated each subsequent year except 1873 and 1886. The Medical Faculty of Dalhousie University is the Examining Board for Nova Scotia and teaches only the premedical branches; Halifax Medical College taught the medical courses, but the Medical Faculty conducted the examinations and granted the degrees. Entire control secured by Dalhousie University in 1911. The course covers four years. The Dean is Dr. George L. Sinclair; the Secretary is Dr. A. W. H. Lindsay. The total registration for 1910-11 was 71; graduates, 16. The next session begins Aug. 31, 1911, and ends April 28, 1912.

Ontario

University of *Toronto Faculty of Medicine, Toronto.*—Organized 1843 as the Medical Faculty of King's College. Abolished in 1853. Re-established in 1887. The course of study covers five years of eight months each. In 1903 it absorbed Trinity Medical College. The Secretary is Dr. A. Primrose. The total registration for 1910-11 was 510; graduates, 143. The next session begins Sept. 27, 1911, and ends May 18, 1912.

Medical Faculty of Queen's University, Kingston.—Organized 1854, first class graduated in 1855, and a class graduated each subsequent year. The faculty was originally a department of the University, but a separation took place in 1866, when the school was conducted under the charter of the Royal College of Physicians and Surgeons at Kingston. In 1892 the school again became an integral part Queen's University. The fees amount to $105 each year; fee for M.D., C.M. degrees, $30. The course covers five years of seven months each. The total registration in 1910-11 was 232; graduates, 46. The Dean is Dr. A. R. B. Williamson. The next session begins Sept. 13, 1911, and ends April 24, 1912.

Medical Department of Western University, London.—Organized in 1881, first class graduated in 1883 and a class graduated each year *subsequently. The faculty numbers 26. The course* is five years of seven and a half months each. The Registrar is Dr. W. E. Waugh. Total registration for 1910-11 was 129; graduates, 26. The *next session begins* Sept. 12, 1911, and ends April 30, 1912.

Quebec

Medical Faculty of McGill University.—Founded 1824 as Montreal *Medical Institution; became the Medical Faculty* of McGill University in 1829; first class graduated under the university auspices in 1833. No session between 1836-39 owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop College. The course extends over five years of eight months each. The faculty numbers 100. The total fees for each of the five years, respectively, are $160, $160, $148, $154 and $184. The total registration for 1910-11 was 308; graduates, 31. The Registrar is Dr. John W. Scane. The next session begins Oct. 2, 1911, and ends June 12, 1912.

Laval University Medical Department, Quebec.—The Quebec School of Medicine, organized in 1848, became in 1852 Medical Department of Laval University; first class graduated in 1855, and a class graduated each subsequent year. The course extends over five years. The Dean is Dr. Michael Joseph Ahern, Quebec. Total registration 1910-11 was 84; graduates, 19. The next session begins Sept. 12, 1911, and ends June 20, 1912.

Laval University, Medical Department, Montreal.—Organized in 1878. First class graduated in 1879. The course extends over five years. The Dean is Dr. E. P. Lachapelle. The total registration for 1910-11 was 195; graduates, 51. The next session begins Oct. 2, 1911, and ends June 20, 1912.

MEDICAL COLLEGES OF THE WORLD.

Nation.	Colleges.	Nation.	Colleges.
Argentine	2	Iceland	1
Australia	3	India	5
Austria	7	Ireland	4
Belgium	4	Italy	20
Bolivia	2	Japan	8
Brazil	3	Madagascar	1
Canada	8	Mexico	9
Chile	1	Netherlands	4
China	8	New Zealand	1
Colombia	1	Norway	1
Cuba	1	Peru	1
Denmark	1	Portugal	3
Ecuador	1	Roumania	2
Egypt	1	Russia	11
England	21	Scotland	8
France	7	Spain	9
Germany	20	Sweden	3
Greece	1	Switzerland	7
Guatemala	1	Syria	2
Haiti	1	Turkey	1
Honduras	1	Uruguay	1
Hungary	2	Wales	1

Total medical colleges in all foreign countries............200
Total in the United States alone..............................120

Counting also the 20 sectarian schools, the graduates of which treat diseases, gives the United States a total of 140.

STANDARDS OF THE COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION

These standards were prepared by the Council on Medical Education acting under the direction of the House of Delegates of the American Medical Association.

Standard Now Recommended

The standard now recommended prerequisite to the practice of medicine is as follows:

(A) Preliminary education sufficient to enable the candidate to enter our recognized universities, such qualifications to be passed on by the state authorities. (B) A premedical course of one or two years devoted to the sciences of physics, chemistry and biology and to modern languages. (C) Four years in pure medical work, the first two of which should be largely spent in laboratories of anatomy, physiology, pathology, pharmacology, etc., and the last two in close contact with patients in dispensaries and hospitals in the study of medicine, surgery, obstetrics, and the specialities. (D) A final year as an interne in a hospital or dispensary should then complete the medical course.

Standard High School Course

SCHEDULE OF SUBJECTS OFFERED IN ACADEMIC AND SECONDARY SCHOOLS, CREDITS IN WHICH ARE ACCEPTABLE FOR ENTRANCE TO MEDICAL COLLEGES

Based on the requirements of the College Entrance Examination Board.

SUBJECTS	UNITS.	REQUIRED.	ELECTIVE.
ENGLISH			
READING AND PRACTICE	2	2	...
Study and Practice	1	...	1
MATHEMATICS			
ALGEBRA, TO QUADRATICS	1	1	...
ALGEBRA (Quadratic Equations, Binomial Theorem and Progressions	½	...	½
PLANE GEOMETRY	1	1	...
Solid Geometry	½	...	½
Trigonometry	½	...	½
LATIN			
GRAMMAR AND COMPOSITION	1	1	...
CAESAR	1	1	4
Cicero	1	...	1
Virgil	1	...	1
Cornelius Nepos	1	...	1
Greek			
Grammar and Composition	1	*	1
Xenophon	1	...	1
Homer	1	...	1
German			
Elementary	2	**	2
Intermediate	1	...	1
French			
Elementary	2	**	2
Intermediate	1	...	1
Spanish			
Elementary	2	**	2
HISTORY			
UNITED STATES HISTORY	1	1	...
Greek and Roman History	1	...	1
Medieval and Modern	1	...	1
English	1	...	1
SCIENCE †			
Botany and Zoology, each	½	...	½
or Biology	1	...	1
Chemistry	1	...	1
PHYSICS	1	1	...
Physiography	½	...	½
Physiology	½	...	½
Drawing	1	...	1
Music			
Appreciation	1	...	1
Harmony	1	...	1
Total	34	8	26

A *unit* is the credit value of 36 weeks' work of 5 recitation periods per week, each recitation period to be of not less than 40 minutes.

Required Branches: Of the 14 units of high school work it is suggested that the subjects in capitals aggregating 8 units should be required. Other work to the amount of at least 6 units may be made up from any of the other subjects of the above schedule.

* Two units of Greek may be substituted for the two required units of Latin.

** A reading knowledge of German, French or other modern language is recommended in the high school courses of students contemplating the study of medicine without higher preliminary qualifications.

† It should be understood that each science course must include laboratory work.

Under such a scheme the majority of men would begin the study of medicine between 18 and 19 years of age, and would graduate from the hospital internship at from 24 to 25. A college education is recognized as a desirable preparation for a limited number of men, but it is thought that it is not and never will be desirable to make such college education a minimum requirement to the study of medicine, as it would make the age of graduation from 27 to 28 years, which is regarded as too old a period at which the young medical man should begin his life's work.

An Acceptable Medical College

The following outline of the essentials of an acceptable medical college was issued by the Council on Medical Education of the American Medical Association for its suggestive value in the rapid development in progress among the medical colleges in the United States:

1. A strict enforcement of all standards and requirements, the college itself to be held responsible for any instances where they are not enforced.

2. A requirement for admission of at least a four-year high school education superimposed on eight years of grammar school work as defined by the College Entrance Examination Board and required by the Carnegie Foundation for the Advancement of Teaching (see schedule, opposite column).

3. As soon as conditions warrant, the minimum requirement for admission should be enlarged to include at least one year's college work in physics, chemistry and biology and a reading knowledge of at least one modern language, preferably German or French.

4. A requirement that students be in actual attendance in the college within the first week of each annual session and thereafter.

5. That actual attendance at classes be insisted on except for good cause, such as for sickness, and that no credit be given under any circumstances for less than 80 per cent. of attendance on each course.

6. That advanced standing be granted only to students of other acceptable colleges and that in granting advanced standing there shall be no discrimination against the college's full-course student.

7. Careful and intelligent supervision of the entire school by a dean or other executive officer who holds, and has sufficient authority to carry out, fair ideals of medical education as interpreted by modern demands.

8. A good system of records showing conveniently the credentials, attendance, grades and accounts of the students.

9. A fully graded course covering four years of at least 30 weeks each, exclusive of holidays, and at least 30 hours per week of actual work; this course should be clearly set forth in a carefully prepared and printed schedule of lectures and classes.

10. Two years of work consisting largely of laboratory work in thoroughly equipped laboratories in anatomy, histology, embryology, physiology, chemistry (inorganic, organic and physiologic), bacteriology, pathology, pharmacology, therapeutics and clinical diagnosis.

11. Two years of clinical work largely in hospitals and dispensaries, with thorough courses in internal medicine (including physical diagnosis, pediatrics, nervous and mental diseases), surgery (including surgical anatomy and operative surgery on the cadaver), obstetrics, gynecology, laryngology, rhinology, ophthalmology, otology, dermatology, hygiene and medical jurisprudence.

12. At least six expert, thoroughly trained instructors in the laboratory branches, salaried so they may devote their entire time to instruction and to that research without which they cannot well keep up with the rapid progress being made in their subjects. These instructors should rank sufficiently high to have some voice in the conduct of the college. There should also be a sufficient number of assistants in each department to look after the less important details.

13. The medical teaching should be of at least the same degree of excellence as obtains in our recognized liberal arts colleges and technical schools.

14. The members of the faculty, with a few allowable exceptions, should be graduates of institutions recognized as medical colleges and should have had a training in all departments of medicine. They should be appointed because of their ability as teachers and not because they happen to be on the attending staff of some hospital or for other like reasons.

15. The college should own or entirely control a hospital in order that students may come into close and extended contact with patients under the supervision of the attending staff. The hospital should have a sufficiently large number of patients to permit the student to see and study the common variety of surgical and medical cases as well as a fair number in each of the so-called specialties.

16. The college should have easily accessible hospital facilities of not less than 200 patients which can be utilized for clinical teaching (for senior classes of 100 students or less), these patients to represent in fair proportion all departments of medicine.

17. The college should have additional hospital facilities for children's diseases, contagious diseases and nervous and mental diseases.

18. Facilities for at least five maternity cases for each senior student, who should have actual charge of these cases under the supervision of the attending physician.

19. Facilities for at least 30 autopsies during each college session (for senior classes of 100 students or less).

20. A dispensary, or out-patient department, under the control of the college, the attendance to be a daily average of 60 cases (for senior classes of 100 students or less), the patients to be carefully classified, good histories and records of the patients to be kept and the material to be well used.

21. The college should have a working medical library to include the more modern text and reference books and 10 or more leading medical periodicals; the library room to be easily accessible to students during all or the greater part of the day; to have suitable tables and chairs and to have an attendant in charge.

22. A working medical museum having its various anatomic, embryologic, pathologic and other specimens carefully prepared, labeled and indexed so that any specimen may be easily found and employed for teaching purposes.

23. A supply of such useful auxiliary apparatus as a stereopticon, a reflectoscope, carefully prepared charts, embryologic or other models, manikins, dummies for use in bandaging, a Roentgen ray or other apparatus now so generally used in medical teaching.

24. The colleges should show evidences of reasonably modern methods in all departments and evidences that the equipment and facilities are being intelligently used in the training of medical students.

25. A clear statement of the college's requirements for admission, tuition, time of attendance on the classes, sessions and graduation should be clearly set forth, together with complete lists of its matriculants and latest graduating class in regular annual catalogues or announcements.

Definitions of a Medical College* and a Medical School†

"An institution to be ranked as a medical college must have at least six (6) professors giving their entire time to medical work, a graded course of four full years of college grade in medicine, and must require for admission not less than the usual four years of academic or high-school preparation, or its equivalent, in addition to the preacademic or grammar school studies."

By a medical school as differentiated from a medical college is meant a part of a university requiring for admission the equivalent of two years of collegiate work and which offers instruction of not less than two years' duration, leading to the degree of Doctor of Medicine.

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* This definition of a college is based on that given in the revised ordinances of the State of New York and which was adopted by the Carnegie Foundation for the Advancement of Teaching as their standard.

† Based on the definition of the term "school" adopted in 1909 by the Association of American Universities.

COLLEGES LISTED AS ACCEPTABLE (CLASS A)

By the Council on Medical Education of the American Medical Association

1. Giving a complete four-year course:

ALABAMA
University of Alabama Medical Department.

CALIFORNIA
Leland Stanford Junior University Medical Department (Cooper Medical College).
University of California Medical Department, San Francisco-Los Angeles.

COLORADO
University of Colorado, School of Medicine.

CONNECTICUT
Yale Medical School.

DISTRICT OF COLUMBIA
George Washington University, Department of Medicine.
Georgetown University, School of Medicine.

ILLINOIS
Northwestern University Medical School.
Rush Medical College, University of Chicago.
College of Physicians and Surgeons, Chicago.
Hahnemann Medical College and Hospital, Chicago.

INDIANA
Indiana University School of Medicine.

IOWA
State University of Iowa, College of Medicine.
State University of Iowa, Homeopathic College.
Drake University, College of Medicine.

KANSAS
University of Kansas, School of Medicine.

KENTUCKY
University of Louisville, Medical Department.

LOUISIANA
Tulane University of Louisiana, Medical Department.

MAINE
Medical School of Maine.

MARYLAND
Johns Hopkins University, Medical Department.
University of Maryland, School of Medicine.
College of Physicians and Surgeons, Baltimore.
Baltimore Medical College.

MASSACHUSETTS
Boston [illegible] Medicine.
Harvard [illegible]
Tufts [illegible]

MICHIGAN
University of Michigan, Department of Medicine and Surgery.
University of Michigan, Homeopathic College.
Detroit College of Medicine.

MINNESOTA
University of Minnesota, College of Medicine and Surgery.

MISSOURI
St. Louis University, School of Medicine.
Washington University Medical Department.
University Medical College, Kansas City.

NEBRASKA
Creighton Medical College.
University of Nebraska, College of Medicine.

NEW HAMPSHIRE
Dartmouth Medical School.

NEW YORK
Albany Medical College.
Columbia University, College of Physicians and Surgeons.
Cornell University Medical College.
[illegible] hool of Medicine.
[illegible] spital.
[illegible] Medical College and Hospital.
Syracuse University, Medical Department.
University and Bellevue Hospital Medical College.
University of Buffalo, Medical Department.

OHIO
Ohio-Miami Medical College, Medical Department, University of Cincinnati.
Starling-Ohio Medical College.
Western Reserve University, Medical Department.

OREGON
University of Oregon, Medical Department.

PENNSYLVANIA
[illegible] and Hospital, Philadelphia.
[illegible] of Philadelphia.
[illegible] Medical Department.
[illegible] Pennsylvania.
[illegible] dical Department.

TENNESSE
Vanderbilt University, Medical Department.

TEXAS
University of Texas, Medical Department.

VERMONT
University of Vermont, College of Medicine.

VIRGINIA
Medical College of Virginia.
University College of Medicine.
University of Virginia, Department of Medicine.

2. Giving a two-year course acceptably:

MISSISSIPPI
University of Mississippi, Medical Department.

MISSOURI
University of Missouri, Medical Department.

NORTH CAROLINA
University of North Carolina College of Medicine
Wake Forest College, Medical School.

NORTH DAKOTA
University of North Dakota, College of Medicine.

OKLAHOMA
University of Oklahoma School of Medicine.
SOUTH DAKOTA
University of South Dakota, College of Medicine.
UTAH
University of Utah, Department of Medicine.
WEST VIRGINIA
West Virginia University, Department of Medicine.
WISCONSIN
University of Wisconsin, College of Medicine.

3. Medical Schools for the Colored Race:
Howard University, Medical Department, Washington, D. C.
Meharry Medical College, Nashville, Tenn.

Colleges and States Having Higher Requirements

The twenty-eight medical schools which are now requiring as a minimum for entrance two or more years of work in a college of liberal arts in addition to a four-year high-school education are as follows:

College	Began
Johns Hopkins University, Medical Department	1893
Harvard Medical School	1900
Western Reserve University, Medical Department	1901
University of Chicago, Rush Medical College	1904
University of California, Medical Department	1905
University of Minnesota, College of Medicine and Surgery	1907
University of North Dakota, College of Medicine	1907
University of Wisconsin, College of Medicine	1907
Cornell University Medical College	1908
Wake Forest College, School of Medicine	1908
Leland Stanford Junior University, Department of Medicine	1909
Yale Medical School	1909
University of Kansas, School of Medicine	1909
University of Michigan, College of Medicine	1909
University of Nebraska, College of Medicine	1909
University of South Dakota, College of Medicine	1909
University of Colorado, School of Medicine	1910
Indiana University School of Medicine*	1910
State University of Iowa, College of Medicine*	1910
State University of Iowa, College of Homeopathic Medicine	1910
Drake University College of Medicine	1910
University of Missouri, Department of Medicine†	1910
Dartmouth Medical School	1910
Columbia University College of Physicians and Surgeons	1910
Syracuse University College of Medicine*	1910
University of Pennsylvania, Medical Department*	1910
University of Utah, Medical Department*	1910
Northwestern University Medical School‡	1911

* One year required for the session of 1909-10.
† One year has been required since 1906.
‡ One year required since the session of 1908-09.

The thirteen following colleges require in addition to a four-year high-school course one year of work in a college of liberal arts.

College	In Force
Howard University School of Medicine	1910
Kansas Medical College	1910
Tulane University, Medical Department	1910
St. Louis University School of Medicine	1910
University Medical College, Kansas City	1910
Washington University, Medical Department*	1910
University of North Carolina School of Medicine	1910
Ohio-Miami Medical College, University of Cincinnati	1910
University of Oregon, Medical Department	1910
University of Texas, Medical Department	1910
University of Virginia, Department of Medicine	1910
Fordham University School of Medicine	1911
University of Pittsburgh, Medical Department	1911

* Will require two years in 1912 and thereafter.

Six other colleges have stated in printed announcements that one year of collegiate work in addition to a four year high-school education will be required for admission beginning in 1912. These are:

Georgetown University School of Medicine.
Boston University School of Medicine.
Medical School of Maine.
University of Michigan, Homeopathic College.
University and Bellevue Hospital Medical College.
University of Vermont, College of Medicine.

From the fact that forty-seven medical colleges have adopted higher entrance requirements it is interesting to note that nine state examining boards have also adopted preliminary requirements in advance of a four-year high-school education. These are as follows:

State Examining Board of	No. of Years Required.	Affects Students Matriculating.	Affects All Applicants.
North Dakota	2	1907-08	1911
South Dakota	1	1907-08	1911
Iowa	2	1907-08	1911
Minnesota	2	1908-09	1912
Colorado	1	1908-09	1912
Colorado	2	1910-11	1914
Connecticut	1	1910-11	1914
Kansas	1	1910-11	1914
Indiana	1	1909-10	1913
Indiana	2	1910-11	1914
Utah	1	1910-11	1914

There are several other states which are contemplating similar increases in their requirements in the near future.

THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The requirements for admission to and graduation from colleges holding membership in force prior to April 10, 1905, were as follows:

SECTION 1.—Each college holding membership in this Association shall require of each student, before admission to its course of study, an examination, the minimum of which shall be as follows:

1. In English, a composition on some subject of general interest. This composition must be written by the student at the time of the examination, and should contain at least 200 words. It should be criticized in relation to thought, construction, punctuation, spelling and handwriting.

2. In Arithmetic, such questions as will show a thorough knowledge of common and decimal fractions, compound numbers, and ratio and proportion.

3. In Algebra, such questions as will bring out the student's knowledge of the fundamental operations, factoring, and simple quadratic equations.

4. In Physics, such questions as will discover the student's understanding of the elements of mechanics, hydrostatics, hydraulics, optics and acoustics.

5. In Latin, an examination on such elementary work as the student may offer, showing a familiarity usually attained by one year of study; for example, the reading of the first fifteen chapters of Cæsar's Commentaries, and the translation into Latin of easy English sentences involving the same vocabulary.

SEC. 2.—In place of this examination, or any part of it, colleges, members of this Association, are at liberty to recognize the official certificates of reputable literary and scientific colleges, academies, high schools, and normal schools, and also the medical student's certificate issued by any state examining board covering the work of the foregoing entrance examination.

SEC. 3.—Colleges, members of this Association, may allow students who fail in one or more branches in this entrance examination the privilege of entering the first-year course, but such students shall not be allowed to begin the second course until the entrance requirements are satisfied.

SEC. 4.—Colleges, members of this Association, are free to honor official credentials issued by medical colleges of equal requirements, except in the branches of study embraced in the last year of their own curriculum.

SEC. 5.—Candidates for the degree of Doctor of Medicine in the year 1899 and thereafter shall have attended at least four courses of medical instruction, each course of at least six months' duration, no two courses of which shall have been in the same calendar year.

SEC. 6.—Colleges, members of this Association, are free to give to students who have met the entrance requirements of the Association additional credit for time on the four years' course as follows: (a) To students having the A.B., B.S., or equivalent degree from reputable literary colleges, one year of time; (b) To graduates and students of colleges, of medicine, as many years as they attended hey have met the previous requirements c hat they pass an examination in materia (3) To graduates of reputable colleges o d veterinary medicine, one year of time.

On April 10, 1905, a new constitution was adopted, which is here given with such amendments as have been made since that time (except where the entire section is changed parts affected by later amendments are inclosed in brackets [] and amendments are printed in italics):

ARTICLE III.

SECTION 1.—Every college holding membership in this Association shall demand of each student, under the condition hereinafter stated, as a minimum requirement for admission to the medical course:

(On and after Jan. 1, 1912, the above paragraph is no longer effective, the following substitute having been adopted Feb. 28, 1911:

SECTION 1.—Every college holding membership in this Association shall, on and after Jan. 1, 1912, require for matriculation a completed or unconditioned medical student's certificate, to be granted by a state medical examining and licensing board, or a board empowered by statute to grant such certificates, or a certificate of entrance to the academic department of any state university, or a certificate of entrance to an accredited university or college, providing that said certificate is granted on no less than the following requirements:

(*a*) A bachelor's degree from an accredited college or university.

(*b*) A diploma from an accredited high school, normal school or academy requiring for admission evidence of the completion of an eight-year course in primary and intermediate grades, and for graduation not less than four years of study embracing not less than two years (4 points) [of foreign language, of which one must be Latin], two years (4 points) of mathematics, two years (4 points) of English, one year (2 points) of history, two years (4 points) of laboratory science, and six years (12 points) of further credit in language, literature, history or science.

Amended May 6, 1907, as follows:

(*b*) A diploma from an accredited high school . . . embracing not less than two years (4 points) *of Latin*, two years (4 points) of mathematics, two years (4 points) of English, one year (2 points) of history, [two years (4 points) of laboratory science], and six years (12 points) of further credit in language, literature, history or science.

(*Continued on page 645*)

TABLE 1.—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA

	NAME AND LOCATION OF COLLEGE	Population of city where college is located. (Census of 1910.)	No. of students registered 1910-11.		Graduates 1911.		Grads. with A.B., B.S., or Ph.B.	No. of teachers.	Weeks in college year.	Total fees. (Dollars.)				Executive Officer.	Session of 1911-12.		
			Men.	Women.	Men.	Women.				1st year.	2nd year.	3rd year.	4th year.		Begins 1911.	Ends 1912.	
	ALABAMA		360	1	71	...	7	...	...	...	...	...	...				
1	Birmingham Medical College, Birmingham	132,683	206	1	28	...	1	34	30	100	100	100	125	B. L. Wyman, M.D., Dean	Sept. 27	May 10	1
2	University of Alabama, Medical Department, Mobile	51,521	154	...	43	...	6	26	30	100	100	100	125	Rhett Goode, M.D., Dean	Sept. 18	May 8	2
	ARKANSAS		229	2	76	...	7	...	...	...	...	...	...				
3	College of Physicians and Surgeons, Little Rock (a)	45,941	126	1	42	...	...	...	...	...	...	...	...	....	....	....	3
4	University of Arkansas, Medical Department, Little Rock	45,941	103	1	34	...	7	47	30	100	100	100	125	James H. Lenow, M.D., Dean	Sept. 15	May 8	4
	CALIFORNIA		379	38	65	7	12	...	...	...	...	...	...				
5	College of Physicians and Surgeons, San Francisco	416,912	23	...	10	...	...	60	35	165	160	160	185	Ethan H. Smith, M.D., Dean	Sept. 4	June 1	5
6	Cooper Medical College, San Francisco (b)	416,912	59	1	23	...	2	40	35	...	...	170	195	Henry Gibbons, Jr., M.D., Dean	Aug. 15	May 10	6
7	Hahnemann Medical College of the Pacific, San Francisco.—H.	416,912	34	...	6	...	...	42	32	155	100	100	100	James W. Ward, M.D., Dean	Aug. 10	April 26	7
8	Leland Stanford Junior University, Dept. of Med., San Francisco	416,912	14	2	...	...	...	25	34	160	160	150	150	R. L. Wilbur, M.D., Dean, San Francisco	Aug. 31	May 15	8
9	University of California, Medical Department, San Francisco	416,912	48	11	5	1	5	57	36	185	185	160	160	A. A. D'Ancona, M.D., Dean	Aug. 15	May 15	9
10	University of California, Medical Department, Los Angeles	319,198	27	6	11	5	4	47	36	...	...	150	150	W. Jarvis Barlow, M.D., Dean	Sept. 4	May 31	10
11	California Eclectic Medical College, Los Angeles.—E.	319,198	24	...	3	...	...	30	32	125	120	100	125	J. A. Munk, M.D., Dean	Sept. 18	May 17	11
12	College of Physicians and Surgeons, Los Angeles	319,198	100	8	7	1	1	48	36	155	150	150	175	Charles W. Bryson, M.D., Dean	Sept. 13	June 13	12
13	Oakland College of Medicine and Surgery, Oakland	150,174	19	2	0	...	...	32	36	210	210	150	175	Edward N. Ewer, M.D., Registrar	Aug. 14	May 18	13
14	College of Medical Evangelists, Loma Linda		31	8	...	...	...	15	36	100	100	100	100	George K. Abbott, M.D., Dean	Sept. 28	June 26	14
	COLORADO		143	9	36	3	14	...	...	...	...	...	...				
15	University of Colorado, School of Medicine, Boulder-Denver	213,381	143	9	36	3	14	77	35	80	80	80	80	William P. Harlow, M.D., Dean	Sept. 11	June 5	15
	CONNECTICUT		83	...	20	...	6	...	...	...	...	...	...				
16	Yale Medical School, New Haven	133,605	83	...	20	...	6	71	35	221	153	150	163	George Blumer, M.D., Dean	Sept. 28	June 20	16
	DISTRICT OF COLUMBIA		412	10	59	2	11	...	...	...	...	...	...				
17	George Washington University, Depart. of Medicine, Washington	331,069	94	4	18	1	...	73	33	150	150	150	150	W. C. Borden, M.D., Dean	Sept. 27	June 5	17
18	Georgetown University, School of Medicine, Washington	331,069	131	...	14	...	5	74	34	165	150	150	150	George M. Kober, M.D., Dean	Sept. 27	June 13	18
19	Howard University, School of Medicine, Washington	331,069	187	6	27	1	6	44	32	107	102	102	109	E. A. Balloch, M.D., Dean	Sept. 27	June 1	19
	GEORGIA		819	2	168	...	8	...	...	...	...	...	...				
20	Atlanta College of Physicians and Surgeons, Atlanta	154,839	320	...	46	...	3	52	28	100	100	100	100	W. S. Elkin, M.D., Dean	Sept. 27	May 1	20
21	Atlanta School of Medicine, Atlanta	154,839	219	...	47	...	5	44	27	100	100	100	130	E. G. Jones, M.D., Proctor	Sept. 20	April 15	21
22	Georgia College of Eclectic Medicine and Surgery, Atlanta.—E.	154,839	79	2	23	...	...	19	28	80	80	80	105	Elzie B. Thomas, M.D., Proctor	Sept. 19	April 20	22
23	Hospital Medical College, Atlanta.—E.	154,839	65	...	26	...	...	24	27	80	80	80	110	G. W. Patterson, M.D., Secretary	Sept. 15	April 1	23
24	Medical College of Georgia, Augusta	41,040	136	...	26	...	...	38	31	100	100	100	130	W. H. Doughty, Jr., M.D., Dean	Sept. 18	May 15	24
	ILLINOIS		2538	124	513	23	102	...	...	...	...	...	...				
25	Bennett Medical College, Chicago	2,185,283	273	10	50	6	...	102	34	130	125	125	125	John D. Robertson, M.D., President	Sept. 26	June 13	25
26	Chicago College of Medicine and Surgery, Chicago	2,185,283	614	16	80	6	...	73	31	125	120	100	115	G. E. Wyneken, M.D., Registrar	Sept. 26	May 20	26
27	University of Illinois, College of Medicine, Chicago (c)	2,185,283	475	33	87	7	4	139	33	155	155	150	160	William E. Quine, M.D., Dean	Sept. 26	June 4	27
28	College of Medicine and Surgery, Chicago.—Ph.M. (d)	2,185,283	38	11	4	1	...	...	...	...	...	...	...	....	....	....	28
29	Hahnemann Medical College and Hospital, Chicago.—H.	2,185,283	100	7	21	1	...	84	32	125	125	125	175	W. Henry Wilson, M.D., Registrar	Sept. 25	May 23	29
30	Hering Medical College, Chicago.—H.	2,185,283	30	4	7	...	1	50	33	115	105	110	100	Robert N. Morris, M.D., Dean	Sept. 26	June 6	30
31	Jenner Medical College, Chicago.*	2,185,283	104	13	9	...	...	42	37	130	125	110	135	John D. MacKellar, M.D., Secretary	Sept. 5	June 15	31
32	Northwestern University Medical School, Chicago	2,185,283	397	...	158	...	29	161	32	190	200	192	185	Arthur R. Edwards, M.D., Dean	Oct. 3	June 3	32
33	Reliance Medical College, Chicago.* (e)	2,185,283	98	7	11	1	...	...	...	...	...	...	...	....	....	....	33
34	Rush Medical College, Chicago	2,185,283	403	23	86	1	68	235	33	185	180	180	180	John M. Dodson, M.D., Dean	Oct. 1	June 15	34
	INDIANA		179	9	50	2	4	...	...	...	...	...	...				
35	Indiana University, School of Medicine, Indianapolis	233,650	179	9	50	2	4	167	35	100	100	135	135	Chas. P. Emerson, M.D., Dean, Indianapolis	Sept. 21	June 18	35
	IOWA		197	11	33	3	8	...	...	...	...	...	...				
36	Drake University, College of Medicine, Des Moines	86,368	66	6	13	1	3	43	35	165	165	165	165	W. W. Pearson, M.D., Dean	Sept. 20	June 12	36
37	State University of Iowa, College of Medicine, Iowa City	10,091	114	4	23	1	5	40	35	60	50	50	60	James R. Guthrie, M.D., Dean	Sept. 18	June 12	37
38	State Univ. of Iowa, Coll. of Homeopathic Med., Iowa City.—H.	10,091	17	1	2	1	...	24	35	60	50	50	60	George Royal, M.D., Dean	Sept. 18	June 12	38
	KANSAS		129	8	25	3	1	...	...	...	...	...	...				
39	Kansas Medical College, Topeka	43,684	49	3	9	1	1	41	35	100	100	100	100	William E. McVey, M.D., Dean	Sept. 12	June 5	39
40	University of Kansas, School of Medicine, Kansas City (f)	336,662	80	5	16	2	...	87	36	80	380	100	110	George O. Foster, Registrar, Lawrence	Sept. 13	June 5	40
	KENTUCKY		472	...	169	...	...	...	...	...	...	...	...				
41	Louisville National Medical College, Louisville	223,928	25	...	10	...	...	...	...	...	...	...	...	E. S. Porter, M.D., Dean	....	....	41
42	University of Louisville, Medical Department, Louisville	223,928	447	...	159	...	...	92	32	105	105	105	125	W. Edward Grant, M.D., Dean	Oct. 2	May 30	42
	LOUISIANA		392	1	90	...	24	...	...	...	...	...	...				
43	Flint Medical College, New Orleans (g)	339,075	14	...	...	...	...	...	...	...	...	...	...	....	....	....	43
44	Tulane University Medical Department, New Orleans	339,075	378	1	90	...	24	93	32	180	180	180	210	Isadore Dyer, M.D., Dean	Sept. 29	May 29	44
	MAINE		67	...	13	...	5	...	...	...	...	...	...				
45	Medical School of Maine, Portland	58,571	67	...	13	...	5	41	33	100	100	100	100	Addison S. Thayer, M.D., Dean, Portland	Oct. 12	June 19	45
	MARYLAND		1295	37	316	10	94	...	...	...	...	...	...				
46	Baltimore Medical College, Baltimore	558,185	205	...	48	...	...	75	34	125	125	125	155	David Streett, M.D., Dean	Sept. 20	June 1	46
47	College of Physicians and Surgeons, Baltimore	558,485	289	...	57	...	...	62	32	155	155	155	185	Charles F. Bevan, M.D., Dean	Oct. 2	June 6	47
48	Johns Hopkins University, Medical Department, Baltimore	558,485	317	30	77	8	85	121	33	217	217	217	217	J. Whitridge Williams, M.D., Dean	Oct. 3	June 11	48
49	Maryland Medical College, Baltimore	558,485	160	7	63	2	2	38	32	111	111	105	135	W. S. Smith, M.D., Dean	Oct. 1	May 31	49
50	University of Maryland, School of Medicine, Baltimore	558,485	324	...	70	...	7	73	32	165	150	150	180	R. Dorsey Coale, M.D., Dean	Oct. 2	June 1	50

	MASSACHUSETTS		**853**	**74**	**178**	**19**	**91**	...	...	...	...	...	...				
51	Boston University, School of Medicine.—H.	670,585	65	21	10	6	2	74	32	142	127	127	155	John P. Sutherland, M.D., Dean	Oct. 5	June 6	51
52	*College of Physicians* and Surgeons, Boston (h)	670,585	179	19	19	4	3	58	35	100	120	105	130	Thomas D. Crothers, M.D., Dean	Sept. 20	June 12	52
53	Harvard Medical School, Boston	670,595	264	...	87	...	83	176	36	207	203	200	200	Henry A. Christian, M.D., Dean	Sept. 28	June 28	53
54	*Tufts* College Medical School, Boston	670,585	345	34	62	9	3	116	32	155	155	155	155	Frederic M. Briggs, Secretary	Sept. 27	June 1	54
	MICHIGAN	670,585	179	19	19	4	3	58	35	100	120	105	130				
55	Detroit College of Medicine, Detroit	465,766	163	...	41	...	...	124	32	115	120	100	130	H. O. Walker, M.D., Secretary	Sept. 20	May 23	55
56	Detroit Homeopathic College, Detroit.—H.	465,766	18	3	9	...	1	36	30	95	85	75	95	D. A. MacLachlan, *M.D., Dean*	Sept. 14	May 1	56
57	University of Michigan, Dept. of Med. and Surg., Ann Arbor	14,817	246	14	57	2	19	71	35	105	95	95	95	Victor C. Vaughan, M.D., Dean	Oct. 3	June 27	57
58	University of Michigan, *Homeopathic College*, Ann Arbor.—H.	14,817	87	5	13	1	2	24	35	105	95	95	95	W. B. Hinsdale, *M.D., Dean*	Oct. 3	June 27	58
	MINNESOTA		**168**	**10**	**31**	...	**8**	...	...	...	...	...	...				
59	University of *Minnesota*, Coll. of Med. and Surg., Minneapolis (i)	516,152	162	10	25	...	8	148	35	150	150	100	100	F. F. Wesbrook, M.D., Dean	Sept. 20	June 14	59
60	Hamline University, Medical Department, Minneapolis (j)	516,152	6	...	6	...	...	...	...	...	...	...	...	....	....	....	60
	MISSISSIPPI		**145**	...	**19**	...	**1**	...	...	...	...	...	...				
61	University of Mississippi, Medical Department, Oxford.†	1,825	50	...	...	...	...	14	34	100	100	...	...	W. S. Leathers, M.D., Dean	Sept. 21	June 4	61
62	*Mississippi* Medical College, Meridian	23,285	95	...	19	...	1	22	28	85	85	75	100	T. A. Barber, M.D., Dean	Oct. 2	April 28	62
	MISSOURI		**971**	**21**	**225**	**9**	**21**	...	...	...	...	...	...				
63	University of Missouri, Medical Department, Columbia.†	9,662	34	...	...	...	...	17	35	70	70	...	...	C. M. Jackson, M.D., Dean	Sept. 21	June 13	63
64	Kansas City Hahnemann Medical College, *Kansas City*.—H. (*k*)	330,662	42	...	7	...	...	49	32	105	100	100	100	W. E. Cramer, M.D., Dean	Sept. 4	May 13	64
65	University Medical College, Kansas City (l)	330,662	140	...	36	...	...	...	...	...	...	...	...	....	....	....	65
66	Eclectic Medical University, *Kansas City*.—E. (*m*)	330,662	49	...	12	...	1	39	34	100	100	100	100	D. R. Alexander, M.D., Secretary	Sept. 4	May 19	66
67	Ensworth Medical College, St. Joseph	77,403	56	...	9	...	...	34	32	90	95	75	95	T. E. Potter, M.D., Secretary	Oct. 1	May 31	67
68	American Medical College, St. *Louis*	687,029	39	7	11	1	...	30	35	100	100	100	100	James Moores Ball, M.D., *Dean*	Sept. 4	May 31	68
69	Barnes Medical College, St. Louis	687,029	168	8	49	3	...	48	32	100	100	100	100	A. R. Kieffer, M.D., Dean	Sept. 14	May 13	69
70	St. *Louis University*, School of Medicine	687,029	274	...	50	...	14	89	35	120	120	120	120	E. P. Lyon, Ph.D., Dean	Oct. 2	May 29	70
71	St. Louis College of Physicians and Surgeons	687,029	46	6	17	5	...	47	30	105	100	100	105	Waldo Briggs, M.D., Dean	Sept. 18	May 6	71
72	*Washington* University, Medical Department, St. Louis	687,029	123	...	34	...	6	93	32	140	142	111	105	George Dock, M.D., Dean	Oct. 2	June 8	72
	NEBRASKA		***281***	***21***	**56**	**6**	**6**	...	...	...	...	...	...				
73	Creighton Medical College, Omaha	124,096	175	13	38	5	2	48	31	105	100	100	105	D. C. Bryant, M.D., Dean	Sept. 4	April 27	73
74	University of Nebraska, College of Medicine, Lincoln and *Omaha*	124,096	67	5	9	1	4	67	34	117	114	100	105	Robert H. Wolcott, M.D., Lincoln	Sept. 12	May 31	74
75	Lincoln Medical College.—E. (n)	43,973	39	3	9	...	...	37	34	90	90	90	90	F. L. Wilmeth, M.D., Dean	Sept. 6	May 20	75
	NEW HAMPSHIRE		**42**	...	**11**	...	**5**	...	...	...	...	...	...				
76	Dartmouth Medical School, Hanover	2,075	42	...	11	...	5	29	36	145	147	125	125	John M. Gile, M.D., Dean	Sept. 21	June 26	76
	NEW YORK		**2231**	**75**	**405**	**18**	**76**	...	...	...	...	...	...				
77	Albany Medical College, Albany	100,253	208	...	42	...	...	99	31	130	145	120	130	Willis G. Tucker, M.D., Registrar	Sept. 19	May 14	77
78	*Columbia University, College of* Phys. and Surgs., New York City	4,766,883	328	...	70	...	43	176	33	250	250	250	250	Samuel W. Lambert, M.D., Dean	Sept. 27	June 5	78
79	Cornell University Medical College, New York City	4,766,883	98	18	48	7	13	150	34	190	185	185	200	William M. Polk, M.D., Dean	Sept. 27	June 12	79
80	*Eclectic Medical* College of the City of New York.—E.	4,766,883	63	14	12	...	1	43	32	160	150	150	160	Samuel A. Hardy, M.D., Dean	Sept. 14	May 14	80
81	Fordham University School of Medicine, New York City	4,766,883	94	...	17	...	...	69	35	200	200	200	200	James J. Walsh, M.D., Dean	Sept. 20	June 14	81
82	*Long* Island College Hospital, New York City	4,766,883	407	...	73	...	3	106	32	205	200	180	200	Joseph H. Raymond, M.D., Secretary	Sept. 28	June 3	82
83	New York Homeopathic Medical College and Hospital.—H.	4,766;883	210	...	14	...	5	60	32	130	130	125	155	Royal S. Copeland, M.D., Dean	Oct. 5	June 1	83
84	New York Medical College and Hospital for Women.—H.	4,766,883	...	24	...	4	...	50	32	155	150	135	155	Helen Cooley Palmer, M.D., *Dean*	Oct. 2	May 24	84
85	University and Bellevue Hospital Medical College, New York	4,766,883	510	...	68	...	3	174	33	205	200	200	200	Egbert Le Fevre, M.D., Dean	Sept. 27	June 5	85
86	Syracuse University, College of Medicine, Syracuse	137,249	102	7	27	2	5	60	33	181	191	151	166	John L. Heffron, M.D., Dean	Oct. 3	June 12	86
87	University of Buffalo, Medical Department, Buffalo	423,715	211	12	36	5	3	83	32	185	180	140	140	Matthew D. Mann, M.D., Dean	Sept. 25	May 31	87
	NORTH CAROLINA		**319**	**2**	**46**	...	**4**	...	...	...	...	...	...				
88	Leonard Medical School, *Raleigh*	19,218	120	...	24	...	2	14	29	52	52	52	62	Charles F. Meserve, LL.D., President	Sept. 28	May 9	88
89	*University of North Carolina*, Medical Department, Chapel Hill.†	1,200	51	...	...	...	...	32	34	*114*	*116*	...	...	*Isaac Hall Manning*, M.D., Dean	Sept. 14	June 4	89
90	North Carolina Medical College, *Charlotte*	34,014	110	2	22	...	2	35	30	97	95	80	105	W. O. Nisbet, M.D., Dean	Sept. 13	May 3	90
91	Wake Forest School of Medicine, Wake Forest.†	823	38	...	...	...	...	16	33	105	115	...	...	John Brewer Powers, M.D., Dean	Sept. 5	May 15	91
	NORTH DAKOTA		**34**	**5**	...	...	...	...	...	...	...	...	...				
92	Univ. of North Dakota, Med. Dept., University, Grand Forks.†	12,478	34	5	...	...	...	25	35	50	50	...	...	M. A. Brannon, A.B., Dean	Sept. 19	June 14	92
	OHIO		**763**	**25**	**170**	**3**	**29**	...	...	...	...	...	...				
93	College of Physicians and Surgeons, Cleveland (o)	560,663	60	4	20	2	1	...	...	...	...	...	...	....	....	....	93
94	Cleveland-Pulte Medical College, Cleveland.—H.	560,663	72	9	13	...	...	59	32	125	125	125	125	George H. Quay, M.D., Dean	Sept. 21	May 11	94
95	Western Reserve University Medical Department, Cleveland	560,663	107	...	14	...	12	114	34	142	135	135	135	F. C. Waite, M.D., Secretary	Oct. 1	June 13	95
96	Eclectic Medical College, Cincinnati.—E.	364,463	92	3	27	...	2	27	30	100	100	100	100	John K. Scudder, M.D., Secretary	Sept. 18	May 8	96
97	Ohio-Miami Medical College of the University of Cincinnati	364,463	145	4	38	...	10	117	33	125	125	125	125	Paul G. Woolley, M.D., Dean	Sept. 25	June 1	97
98	Starling-Ohio Medical College, Columbus	181,548	248	4	50	1	4	64	32	140	135	135	135	W. J. Means, M.D., Dean	Sept. 20	May 22	98
99	Toledo Medical College, Toledo	168,497	39	1	8	...	...	48	30	120	120	120	120	E. I. McKesson, M.D., Secretary	Oct. 2	May 24	99
	OKLAHOMA		**57**	**6**	**13**	**2**	...	...	...	...	...	...	...				
100	Univ. of Oklahoma, School of Med., Norman *and Oklahoma City*	64,205	57	6	13	2	...	40	35	50	30	100	105	Walter L. Capshaw, M.D., Secretary	Sept. 19	June 13	100
	OREGON		**114**	**5**	**19**	...	**2**	...	...	...	...	...	...				
101	University of Oregon, *Medical Department, Portland*	207,214	68	4	16	...	1	50	32	155	150	117	58	S. E. Josephi, M.D., Dean	Sept. 12	May 15	101
102	Willamette University, Medical Department, Salem	14,094	46	1	3	...	1	20	32	123	110	88	58	W. H. Byrd, M.D., Dean	Oct. 3	June 1	102
	PENNSYLVANIA		**1910**	**123**	**453**	**36**	**81**	...	...	...	...	...	...				
103	Hahnemann Medical College and Hospital, Philadelphia.—H.	1,549,008	135	...	37	...	7	80	33	150	150	150	150	Wm. B. Van Lennep, M.D., Dean	Sept. 27	June 6	103
104	*Jefferson Medical College*, Philadelphia	1,549,008	559	...	117	...	12	130	33	186	182	181	180	*James W. Holland*, M.D., Dean	Sept. 25	June 3	104
105	Medico-Chirurgical College of Philadelphia	1,549,008	462	...	74	...	9	104	33	162	159	156	150	Seneca Egbert, M.D., Dean	Sept. 25	June 7	105
106	Temple University, Medical Department, Philadelphia	1,549,008	73	9	22	1	...	84	34	155	150	150	150	Frank C. Hammond, M.D., Dean	Sept. 15	June 3	106
107	University of Pennsylvania, Department of Medicine, Philadelphia	1,549,008	445	...	151	...	51	166	34	200	200	200	200	Allen J. Smith, M.D., Dean	Sept. 29	June 19	107
108	Woman s Medical College of Pennsylvania, Philadelphia	1,549,008	....	110	...	32	2	53	30	161	156	154	154	Clara Marshall, M.D., Dean	Sept. 21	May 2	108
109	University of Pittsburgh, Medical Department, Pittsburgh	533,905	236	4	52	3	...	102	34	235	220	155	160	Thomas S. Arbuthnot, M.D., Dean	Sept. 25	June 12	109
	PHILIPPINE ISLANDS		**65**	...	**3**	...	...	...	...	...	...	...	...				
110	University of the Philippines Coll. of Med. and Surg., Manila	219,928	65	...	3	...	...	45	36	...	...	...	...	Paul C. Freer, M.D., Dean	June 1	May 4	110
	SOUTH CAROLINA		**201**	**2**	**48**	**1**	**7**	...	...	...	...	...	...				
111	Medical College of South Carolina, Charleston	58,833	201	2	48	1	7	41	32	100	100	100	100	Robert Wilson, Jr., M.D., Dean	Oct. 2	June 3	111

TABLE 1.—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA—(*Concluded*)

Number.	NAME AND LOCATION OF COLLEGE	Population of city where college is located. (Census of 1910.)	No. of students registered 1910-11. Men.	No. of students registered 1910-11. Women.	Graduates 1911. Men.	Graduates 1911. Women.	Grads. with A.B., B.S., or Ph.B.	No. of teachers.	Weeks in college year.	Total fees. (Dollars.) 1st year.	Total fees. (Dollars.) 2nd year.	Total fees. (Dollars.) 3rd year.	Total fees. (Dollars.) 4th year.	Executive Officer.	Session of 1911-12. Begins 1911.	Session of 1911-12. Ends 1912.	Number.
	SOUTH DAKOTA		7	...	...	...	...	...	...	...	...	...	...				
112	University of South Dakota, College of Medicine, Vermilion.†	2,147	7	...	...	...	...	9	34	60	60	...	...	Christian P. Lommen, B.S., Dean	Sept. 18	June 6	112
	TENNESSEE		1391	10	308	2	25	...	...	...	...	...	...				
113	Lincoln Memorial University Medical Department, Knoxville	36,340	97	4	22	2	1	32	28	100	100	100	125	S. L. Jones, M.D., Dean	Oct. 1	May 1	113
114	Meharry Medical College, Nashville	110,364	297	2	56	...	7	26	29	56	59	57	65	G. W. Hubbard, M.D., Dean	Sept. 13	April 24	114
115	Universities of Nashville and Tennessee, Dept. of Medicine (p)	110,364	192	...	63	...	4	...	...	...	...	...	...	....	....	....	115
116	Vanderbilt University, Medical Department, Nashville	110,364	279	...	40	...	6	50	31	125	125	125	150	L. E. Burch, M.D., Secretary	Sept. 20	May 15	116
117	College of Physicians and Surgeons, Memphis (p)	131,105	113	3	22	...	2	...	...	...	...	...	...	....	....	....	117
118	University of Tennessee, College of Medicine, Memphis (p)	131,105	...	...	...	...	...	40	30	125	125	125	150	E. C. Ellett, M.D., Dean	Sept. 13	May 7	118
119	Memphis Hospital Medical College, Memphis	131,105	379	...	97	...	4	43	30	125	125	125	150	Wm. B. Rogers, M.D., Dean	Oct. 2	May 18	119
120	University of West Tennessee, Medical Department, Memphis	131,105	34	1	8	...	1	16	30	50	50	50	60	M. V. Lynk, M.D., Dean	Sept. 14	May 1	120
	TEXAS		411	15	112	3	5	...	...	...	...	...	...				
121	Fort Worth School of Medicine, Fort Worth. (q)	73,312	89	1	27	1	...	49	30	114	113	108	125	W. R. Thompson, M.D., Dean	Sept. 25	May 16	121
122	University of Texas, Department of Medicine, Galveston	36,981	164	13	52	1	4	25	32	61	31	21	6	W. S. Carter, M.D., Dean	Oct. 2	May 31	122
123	Baylor University, College of Medicine, Dallas	92,104	89	1	17	...	...	25	30	105	100	100	125	Edward H. Carey, M.D., Dean	Oct. 2	May 21	123
124	Southwestern University Medical College, Dallas	92,104	69	...	17	...	1	32	31	110	105	100	125	John O. McReynolds, M.D., Dean	Oct. 1	May 25	124
	UTAH		18	1	...	...	...	...	...	...	...	...	...				
125	University of Utah, School of Medicine, Salt Lake City.†	92,777	18	1	...	...	...	19	34	55	55	...	...	Charles T. Vorhies, M.D., Dean	Sept. 18	June 1	125
	VERMONT		186	...	40	...	2	...	...	...	...	...	...				
126	University of Vermont, College of Medicine, Burlington	20,468	186	...	40	...	2	61	31	135	135	135	165	J. N. Jenne, M.D., Secretary	Oct. 30	June 27	126
	VIRGINIA		438	...	93	...	17	...	...	...	...	...	...				
127	Medical College of Virginia, Richmond	127,628	210	...	40	...	...	54	34	100	100	100	100	Christopher Tompkins, M.D., Dean	Sept. 12	May 29	127
128	University College of Medicine, Richmond	127,628	149	...	33	...	3	65	34	104	104	104	134	Alfred L. Gray, M.D., Dean	Sept. 12	May 24	128
129	University of Virginia, Department of Medicine, Charlottesville	6,765	79	...	20	...	14	33	36	150	150	150	150	R. H. Whitehead, M.D., Dean	Sept. 14	June 12	129
	WEST VIRGINIA		13	...	...	...	...	...	...	...	...	...	...				
130	West Virginia University College of Medicine, Morgantown. (r)	9,150	13	...	...	...	...	...	...	...	...	...	...	....	....	....	130
	WISCONSIN		345	11	60	4	...	...	...	...	...	...	...				
131	Marquette University, Medical Department, Milwaukee	373,857	247	6	46	2	...	62	31	135	135	135	150	Warren B. Hill, M.D., Dean	Oct. 3	May 27	131
132	Wisconsin College of Physicians and Surgeons, Milwaukee	373,857	53	2	14	2	...	54	31	145	135	130	145	Thomas C. Phillips, M.D., Dean	Oct. 2	May 24	132
133	University of Wisconsin, College of Medicine, Madison.†	25,531	45	3	...	...	...	16	35	75	75	...	...	Charles R. Bardeen, M.D., Dean	Sept. 27	June 22	133
	CANADA		1525	7	340	2	15	...	...	...	...	...	...				
134	Dalhousie University, Faculty of Medicine, Halifax, N. S.	40,832	67	4	14	2	1	26	31	91	111	112	121	A. W. H. Lindsay, Secretary	Sept. 4	April 28	134
135	Queen's University, Faculty of Medicine, Kingston, Ontario	17,961	232	...	46	...	...	...	29	105	105	105	135	A. R. B. Williamson, M.D., Secretary	Sept. 13	April 24	135
136	Western University, Faculty of Medicine, London, Ont.	37,981	129	...	26	...	...	26	30	105	105	105	105	W. E. Waugh, M.D., Registrar	Sept. 12	April 30	136
137	McGill University, Medical Faculty, Montreal, Que.	353,007	303	...	31	...	13	100	33	160	148	154	154	John W. Scane, M.D., Registrar	Oct. 1	June 12	137
138	Laval University, Medical Faculty, Montreal, Que.	353,007	195	...	51	...	...	50	34	110	118	126	138	E. P. Lachapelle, M.D., Dean	Oct. 2	May 29	138
139	Laval University, Medical Faculty, Quebec, Que.	73,500	84	...	19	...	...	17	34	75	75	75	75	Michael J. Ahern, M.D., Dean	Sept. 12	June 19	139
140	University of Toronto, Medical Faculty, Toronto, Ont.	208,040	510	...	143	...	...	157	31	150	150	150	150	A. Primrose, M.D., Secretary	Sept. 26	May 17	140
141	University of Manitoba, Manitoba Medical College, Winnipeg	42,336	131	3	19	...	1	50	28	155	155	155	155	E. S. Popham, M.D., Registrar	Oct. 1	May 1	141
	MEXICO		322	3	58	...	...	...	...	...	...	...	...				
142	Escuela Nacional de Medicina, Mexico City	344,721	322	3	58	...	...	103	36	...	...	...	...	Fernando Zarraga, M.D., Dean	July 1	April 15	142

H., Homeopathic; E., *Eclectic*; Ph.M., Physiomedical. * Night schools. † Gives only two years of the medical course.

REFERENCES TO TABLE I.

(a) The *College of Physicians* and Surgeons of Little Rock has united with the University of Arkansas Medical Department and the consolidated school will be entirely *controlled* and financed hereafter by the *University of* Arkansas.

(b) Cooper Medical College will continue until the students enrolled at the time of its merger with the Leland Stanford University in 1908 have been *graduated*. It will then cease to exist and the Leland Stanford will teach all four years of the medical course.

(c) Formerly the College of *Physicians and* Surgeons. The school is *now* an integral part and entirely under the control of the University of Illinois.

(d) The College of Medicine and Surgery, the last *of* the physiomedical *colleges, has* been absorbed by the Chicago College of Medicine and Surgery.

(e) This college, which held its sessions at night, has *been* discontinued.

(f) The population figures given are for both Kansas City, Kansas, and Kansas City, Missouri.

(g) Flint Medical College has been temporarily suspended.

(h) The College of Physicians and Surgeons of Boston is not included in the list of medical colleges *recognized by* the Massachusetts *Medical Society.*

(i) The population figures given are for the adjoining cities of Minneapolis and St. Paul.

(j) This is the *last medical class* which will be graduated by *the Hamline* University Medical Department. Under the agreement whereby this school was merged with the University of Minnesota, College of Medicine *and Surgery*, the Hamline University *was to* grant degrees for all students enrolled at the time of the merger who were not eligible for the degree from the University of Minnesota.

(k) *See note (i).*

(l) This University Medical College has been permanently suspended.

(m) The *Eclectic* Medical University is said to be not in good standing with the Missouri State Board of Health.

(n) Last year an offshoot of the Lincoln Medical College was organized under the *name of* the Nebraska Medical College. They have been reunited, however, and will continue as the Medical Department of Cotner University.

(o) The *College of* Physicians and Surgeons of Cleveland has been merged into the Western Reserve University Medical Department but by the terms of the agreement will *continue* to grant degrees until *all the students* enrolled at the time of the merger, who were not eligible to receive the degree from Western Reserve, have been graduated.

(p) The union between the Medical Departments of the University *of* Nashville and the University of Tennessee has been dissolved, the former has ceased to exist and the latter has been moved to Memphis where it will occupy the building of the College *of* Physicians and Surgeons, with which it has been consolidated.

(p) The Medical Department of *Fort Worth* University has taken the title of *Fort Worth* School of Medicine and by affiliation has become the Medical Department of the Texas Christian University. Neither institution assumes any liability *for* the conduct or the expenses of the other.

(r) This college was closed by the Regents of West Virginia University at the end of the session of 1910-11.

(Continued from page 641)

Amended March 17, 1908, as follows:

(b) A diploma from an accredited high school . . . embracing not less than two years (4 points) [of Latin], two years (4 points) of mathematics, two years (4 points) of English, one year (2 points) of history, *one year (2 points) of physics*, and six years (12 points) of further credit in language, literature, history or science.

Amended March 21, 1910, as follows:

(b) A diploma from an accredited high school . . . embracing two years (4 points) of Latin, *or four years (8 points) of either high school French or German or its full equivalent, provided a satisfactory examination is passed in the elements of Latin grammar;* two years (4 points) of mathematics, two years (4 points) of English, one year (2 points) of history, one year (2 points) of physics, and six years (12 points) of further credit in language, literature, history or science.

(c) An examination in the following branches: A. Required, 18 points: Mathematics, 4 points; English, 4 points; History, 2 points; [Language (2 must be Latin), 4 points]; Science (taken from physics, chemistry, botany, zoology), 4 points.

B. Optional (to 12 points): English, 2 points; History, 6 points; Language, 6 points; Manual Training, 2 points; Mechanical Drawing, 1 point; Natural Science (botany, biology, zoology), 2 points; Physical Science (chemistry, physics), 2 points; Trigonometry, 1 point; Astronomy 1, Civics 1, Geology 1, Physical Geography 1, Physiology and Hygiene 1, Political Economy 1.

(One point in any subject in a high school or academic course demands not less than five periods per week of forty-five minutes each for eighteen weeks.)

Amended May 6, 1907, as follows:

(c) An examination in the following branches: A. Required, 18 points: Mathematics, 4 points; English, 4 points; History, 2 points; *Latin, 4 points;* Science (taken from physics, chemistry, botany, zoology), 4 points.

B. Optional: (Same as before.)

Amended March 17, 1908, as follows:

(c) An examination in the following branches, totaling 30 points:

A. Required, 16 points.	Points
Mathematics—(Minimum, 2 years; maximum, 3 years.........	4
Algebra and plain geometry.	
English—(Minimum, 2 years; maximum, 4 years)...........	4
(a) English grammar.	
(b) Rhetoric and composition.	
Latin—(Minimum, see (b); maximum, 4 years)........	4
(a) Latin grammar.	
(b) Latin prose composition.	
(c) Reading four books of Cæsar or equivalent.	
Physics—(1 year). With laboratory work..................	2
History (1 year). Including civics and political economy......	2
Total required..................................	16

B. Elective, 14 points.	Points
ature (2 years) Only if taken after	
....	4
Spanish or Greek (4 years); not less than 1 year in any one sec (b).................	2
Advanced Mathematics—Solid Geometry and Trigonometry (½ year each)........................	1
Natural Science (1 year). Biology, 1 year, or Botany and Zoology, ½ year each..........................	2
Physical Science—(1 year). Chemistry..................	2
Earth Science—Physical Geography and Geology, ½ year each..	1
Physiology and Hygiene—(½ year)......................	1
Astronomy—(½ year)............................	1
Drawing—(½ year)............................	1

One point in any subject demands one period per week of not less than 45 minutes, for 18 weeks.

Two points equal 5 counts, or 1 unit, or 2 credits.

If only 4 hours per week are given in a subject, the year's work represents 4 counts (the minimum), and must be counted as such and not as 5 counts (the maximum).

(d) Certificates from reputable instructors [recognized by the superintendent hereinafter to be mentioned or] by any state board of medical examiners duly authorized by law, may be accepted in lieu of any part of this examination.

Amended March 19, 1906, as follows:

(d) Certificates from reputable instructors *recognized by any state board of medical examiners duly authorized by law or by the superintendents of public instruction in states not having a board of examiners,* may be accepted in lieu of any part of this examination.

Section 1 (e) was added May 21, 1910, as follows:

The university matriculation certificate of the members of the Association of American Universities may be accepted as a minimum requirement for admission.

Section 1 (d) and (e) were eliminated Feb. 28, 1911.

SEC. 2.—This examination must be conducted by or under the authority of the superintendent of public instruction [of the city or] state in which the college is located. In no case shall it be conducted by any person connected with the faculty, medical or otherwise, of the institution to which the student is seeking admission.

Amended March 19, 1906, as follows:

SEC. 2.—This examination must be conducted by or under the authority of the *board of examiners or* of the superintendent of public instruction of [the city or] state in which the college is located. In no case shall it be conducted by any person connected with the faculty, medical or otherwise, of the institution to which the student is seeking admission.

Amended March 21, 1910, as follows:

This examination must be conducted by or under the authority of the board of examiners [or of the superintendent of public instruction] of the state in which the college is located [*as provided for in Sec. 1, (d).*] In no case, etc. (same as before).

Amended Feb. 28, 1911, as follows:

SEC. 2—This examination must be conducted by or under the authority of the board of *medical* examiners of the state in which the college is located, *or by a duly authorized examiner of the college entrance examination board, or the authorized examiner of an accredited university, state or otherwise, or by an examiner whose certificates are accepted by accredited colleges or universities, or by a method approved by the judicial council of this association.*

SEC 3.—A student may be allowed to enter on his medical work conditioned in not more than six points, and these conditions must be removed by satisfactory examination before he is allowed to enter on the second year of his medical course.

By an amendment adopted Feb. 28, 1911, to become effective on and after Jan. 1, 1912, no entrance conditions are to be permitted, and Section 3 is re-worded to cover another subject, as follows:

SEC. 3.—The term "accredited" as applied to high schools, academies, colleges and universities means institutions of that type that have been investigated and are accredited by the state university of their respective states, by the North Central Association of Colleges and Secondary Schools, the Association of Colleges and Preparatory Schools of the Southern States, the Association of Colleges and Preparatory Schools of the Middle States and Maryland, the New England College Entrance Certificate Board, the Association of American Universities and the Association of State Universities, provided that such accrediting is based on Article III, Section 1, of this constitution.

SEC 4.—Colleges in membership in this Association may honor the official credentials presented by students from other colleges having the standard requirements maintained by members of this Association, excepting for the fourth year of the course, but no member of this Association shall admit a student to advanced standing without first communicating with the college from which such student desires to withdraw dean of such college a direct written to the applicant's [professional and mora exact work he has done in said college.]

Amended Feb. 28, 1911, to read:

Colleges in membership . . . without . . . receiving from the dean, *secretary or registrar* of such college a direct written communication certifying to the applicant's *standing. Credit for time or scholarship cannot be given beyond that of the college issuing the credentials, except by mutual agreement between the colleges.*

SEC. 5.—Candidates for the degree of Doctor of Medicine shall have attended four courses of study in four calendar years, each annual course to have been of not less than thirty (changed to *thirty-two* by amendment adopted March 21, 1910) teaching weeks' duration, and at least ten months shall intervene between the beginning of any course and the beginning of the preceding course.

SEC. 6.—Credit may be given to the holder of a Bachelor's degree from an approved college or university for any work in the medical branches which he has successfully completed in his college course, only so far as it is the full equivalent of corresponding work in the medical curriculum. The holder of such Bachelor's degree may also be given time credits of not exceeding one year, provided that such student has had at least 40 hours in physics, 144 hours in chemistry, 24 hours in osteopathy, 292 hours in human or comparative anatomy, 124 hours in histology, 85 hours in embryology, 145 hours in physiology and 46 hours in materia medica, provided that the applicant for such time credits satisfies the professors of the chairs mentioned in the medical school as to his proficiency in these first-year medical studies, and satisfies the examiner, as provided for in Section 2, Article III, that his studies for which the degree was conferred include the above requirements. Such student may be allowed to complete a course for the medical degree in not less than 31 months, provided he completes the remainder of the medical curriculum in that time.

This section was amended May 6, 1907, to read as follows:

SEC. 6.—No time credit shall be given to holders of a Bachelor's degree, but subject credit may be given on satisfactory examination. Four years of residence in a medical college shall be required of all candidates for the degree of Doctor of Medicine.

SEC 7.—A college which gives less than a four years' course of study, but does not graduate students, and is possessed of other required qualifications, may be admitted to membership.

SEC. 8.—Each student shall be obliged to attend 80 per cent. of the exercises in every annual course of study for which he seeks credit. No student shall be given credit on examination unless he attains a grade of at least 70 per cent. or its equivalent in any other marking system. And no student shall be graduated unless he shall have attained a passing grade in each and all subjects of the required curriculum.

This section was amended Feb. 28, 1911, by inserting in the first line, after the word "attend," "*not less than.*"

ARTICLE V.

SECTION 1.—*The* entire course of four years shall consist of at least 4,000 hours, divided into the subjects as shown in the following table, and no college shall be recognized that falls below this standard over 20 per cent. in any one branch or over 10 per cent in the total. Laboratory or clinic hours may be substituted for didactic hours.

(Continued on page 648)

TABLE 2.—DISTRIBUTION OF MEDICAL

Number.	NAME OF COLLEGE	1 Alabama.........549	2 Arizona.........10	3 Arkansas.........307	4 California.........356	5 Colorado.........143	6 Connecticut.......243	7 Delaware.........34	8 Dist. of Columbia.131	9 Florida.........167	10 Georgia.........710	11 Idaho.........25	12 Illinois.........1598	13 Indiana.........503	14 Iowa.........489	15 Kansas.........341	16 Kentucky.........359	17 Louisiana.........329	18 Maine.........151	19 Maryland.........291	20 Massachusetts....819	Number.
1	Birmingham Medical College, Birmingham	182								6	3						1					1
2	University of Alabama, Medical Dept., Mobile	140	1							2	1											2
3	College of Physicians and Surgeons, Little Rock		1	75						2	2		3			1		6				3
4	University of Arkansas, Med. Dept., Little Rock			83	1								1	1			1	3				4
5	College of Phys. and Surgs., San Francisco				12									2		1					1	5
6	Hahnemann Medical College of the Pacific.—H.*				33																	6
7	Leland Stanford Junior				14									1								7
8	Cooper Medical College,				57																	8
9	Univ. of California, Med				51								1	1								9
10	Univ. of California, Med. Dept., Los Angeles				31																	10
11	California Eclectic Med. Coll., Los				22	1																11
12	College of Physicians and Surgeons,				17	1	1		1				7	2	14	4	1				4	12
13	Oakland College of Med. and Surgery, Oakland				18											1						13
14	College of Medical Evangelists, Loma Linda				10	2							1	2	1	1						14
15	University of Colorado, School of Med., Boulder	1				89	1			1		3	1	4	11	3	1	1			2	15
16	Yale Medical School, New Haven						53									1			2		3	16
17	George Washington						1		30				2			1			1	3	3	17
18	Georgetown Univ., S						7		39	1			2				3		1	4	18	18
19	Howard University, School of Med., Washington	3		2			1	2	34	5	6		3				1	3		12	2	19
20	Atlanta College of Phys. and Surgs., Atlanta	27			1	1				36	109							1				20
21	Atlanta School of Medicine, Atlanta	13								14	154							2			1	21
22	Georgia College of Eclectic Med. and Surg.—E.	5								7	63											22
23	Hospital Medical College, Atlanta.—E.*			3						9	42											23
24	Medical College of Georgia, Augusta						1			8	109											24
25	Bennett Medical College, Chicago.*			1		1	1			1			153	12	17	3	2				1	25
26	Chicago College of Medicine and Surgery	7	1	4	2		2			1			288	51	21	11	5		2		6	26
27	College of Physicians and Surgeons, Chicago	1		1		4			1	1		2	263	31	21	8		1			1	27
28	College of Medicine and Surgery, Chicago.—Ph.M.				1								22	3	4		1					28
29	Hahnemann Med. Coll. and Hosp., Chicago.—H.				2	1						1	53	7	16	2	4				3	29
30	Hering Medical College, Chicago.—H			1	2								17	2			5					30
31	Jenner Medical College, Chicago.*			1					1		1		91	2	2		2				1	31
32	Northwestern University Medical School, Chicago		1	1	4	8					1		149	16	38	10		1				32
33	Reliance Medical College												107									33
34	Rush Medical College, Chicago	1		6	4	2				1		5	154	26	34	18	1	3			2	34
35	Indiana University, School of Med., Indianapolis			1									2	180								35
36	Drake University, College of Med., Des Moines				1							1	2		52							36
37	State Univ. of Iowa, Coll. of Med., Iowa City												3		104		1					37
38	State Univ. of Iowa, Coll. of Homeo. Med.—H														15							38
39	Kansas Medical College, Topeka			1												46						39
40	Univ. of Kansas, School of Med., Kansas City									1					1	76						40
41	Louisville National Medical College, Louisville																25					41
42	University of Louisville, Med. Dept., Louisville	4		7		1				2	5		13	65	2	5	176	7				42
43	Flint Medical College, New Orleans												1					6				43
44	Tulane University, Medical Dept., New Orleans	45		9			1			10	9			1				166	1		1	44
45	Medical School of Maine, Portland				2		2												56		4	45
46	Baltimore Medical College, Baltimore	2		1			10		1	2								1	5	24	19	46
47	College of Physicians and Surgeons, Baltimore	1			1		28	3	1	1	1									37	21	47
48	Johns Hopkins Univ., Med. Dept., Baltimore	7		4	13		15		5	2	16	1	11	7	7	1	15	5	4	43	11	48
49	Maryland Medical College, Baltimore	1					8	1	3		1			2						25	7	49
50	Univ. of Maryland, School of Med., Baltimore						5	7	1	8	8			1		1		1	2	122	3	50
51	Boston University, School of Medicine.—H						1												4		59	51
52	College of Physicians and Surgeons, Boston						3		1	3					1				8		102	52
53	Harvard Medical School, Boston			1	12	5	5		1				4	2	3	3	2		17		133	53
54	Tufts College Medical School, Boston						11						1		1				17		301	54
55	Detroit College of Medicine, Detroit													2								55
56	Detroit Homeopathic College, Detroit.—H																					56
57	Univ. of Michigan, Dept. of Med. and Surg	2		1	5	2			1		4	1	7	9	7		3		1		2	57
58	Univ. of Michigan, Homeo. Coll., Ann Arbor.—H								1				1	2	1	1		1	1	2	1	58
59	Univ. of Minnesota, Coll. of Med. and Surg					1						1	3		2	1						59
60	University of Mississippi, Med. Dept., Oxford																	1				60
61	Mississippi Medical College, Meridian	8									2							3				61
62	University of Missouri, Med. Dept., Columbia														1						2	62
63	Kansas City Hahnemann Med. Coll.—H.*												1	1	1	18						63
64	University Medical College, Kansas City			3	1	2			2						2	57						64
65	Eclectic Medical University, Kansas City.—E			1									7	1	4	10	1					65
66	Ensworth Medical College, St. Joseph			1								1			2	7						66
67	American Medical College, St. Louis.—E			2									11	1	1	2	2					67
68	Barnes Medical College, St. Louis.*			3		2							53	9	7	4	7				1	68
69	St. Louis University, School of Medicine		1	1	1	3	1				1		72	6	14	6						69
70	St. Louis College of Physicians and Surgeons			1									19	1	2		1					70
71	Med. Dept., St. Louis			1	1								23	3	2	6						71
72	ical College, Omaha				2	2	2					2	2		43	4					1	72
73	College of Medicine					1									9	1						73
74	Lincoln Medical College, Lincoln.—E.*														1	1						74
75	Dartmouth Medical School, Hanover						3						1						3		10	75
76	Albany Medical College, Albany																				13	76
77	Columbia Univ., Coll. of Phys. and Surg	2			2	2	7		1		2		2	1			1		3		7	77
78	Cornell Univ., Medical College, New York City				3									2	1					1	2	78
79	Eclectic Med. Coll. of the City of New York.—E						1															79
80	Fordham Univ. School of Med., New York City				1		4	1													1	80
81	Long Island College Hospital, New York City						12														1	81
82	New York Med. Coll. and Hosp. for Women.—H																				1	82
83	New York Homeo. Med. Coll. and Hosp.—H				2		6		2		2		1							2	1	83
84	Univ. and Bellevue Hosp. Med. Coll., New York	1			2	1	5			3			4		1		2				5	84
85	Syracuse University, Coll. of Med., Syracuse				1			1							1							85
86	University of Buffalo, Medical Dept., Buffalo						1						1	1								86
87	Leonard Medical School, Raleigh	4								2	5									1	1	87
88	University of North Carolina, Med. Dept																					88
89	North Carolina Medical College, Charlotte					1																89
90	Wake Forest School of Medicine, Wake Forest																					90
91	University of North Dakota, Med. Dept																					91
92	Cleveland-Pulte Med. College, Cleveland.—H												1	1								92
93	Western Reserve Univ., Med. Dept., Cleveland	1				1							3	5	1	1						93
94	Eclectic Medical College, Cincinnati.—E			4							4		4	10		1	5					94
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
Number.	Michigan.........407	Minnesota.........313	Mississippi.........495	Missouri.........620	Montana.........27	Nebraska.........271	Nevada.........4	New Hampshire....84	New Jersey.......455	New Mexico.........11	New York.........2162	North Carolina...487	North Dakota.....96	Ohio.........859	Oklahoma.........171	Oregon.........111	Pennsylvania....1789	Rhode Island.....105	South Carolina...379	South Dakota.....87	Tennessee.........550	Texas.........704	Utah.........77	Vermont.........96	Virginia.........445	Washington.......88	West Virginia.....220	Wisconsin.........459	Wyoming.........11	Philippine Is., Etc.59	Foreign.........579	Totals.........19,786	Number.
1	1	....	4	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	1	....	1	....	....	....	1	....	....	....	....	....	5	207	1
2	....	....	8	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	154	2
3	....	....	5	3	....	....	....	....	....	....	....	....	....	1	7	....	1	....	....	....	4	13	....	....	....	....	....	....	....	....	3	127	3
4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	9	....	....	....	....	....	....	4	....	....	....	....	....	....	....	....	1	104	4
5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	5	23	5
6	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	34	6
7	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	16	7
8	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	60	8
9	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	1	....	....	....	2	59	9
10	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1	....	....	....	....	....	....	....	....	....	33	10
11	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	24	11
12	1	4	....	9	....	4	....	1	1	....	3	....	....	3	....	1	4	....	....	....	1	1	....	....	....	....	2	5	....	....	14	108	12
13	1	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	21	13
14	1	1	....	....	1	2	....	....	....	....	3	....	....	1	....	1	....	....	....	1	....	1	....	....	....	2	....	1	....	....	7	39	14
15	2	2	....	2	....	3	....	1	....	....	2	....	....	3	1	1	....	....	....	....	....	2	2	1	2	1	1	1	1	....	3	152	15
16	....	....	....	1	....	....	....	....	2	....	4	....	....	5	....	1	4	2	....	1	....	....	....	3	....	....	....	....	....	....	1	83	16
17	1	2	....	....	....	1	....	1	....	....	3	2	2	3	1	....	4	....	2	....	2	1	....	2	15	1	3	1	....	....	8	98	17
18	....	....	1	....	....	....	....	1	5	....	4	1	....	2	1	....	11	8	....	....	....	....	....	....	1	1	4	....	....	4	9	131	18
19	....	1	2	3	1	....	....	....	4	....	10	5	1	7	....	....	6	3	5	....	3	6	....	....	29	....	....	....	....	....	33	193	19
20	....	....	12	....	....	....	....	....	....	....	5	4	....	....	....	....	1	....	26	....	3	2	....	....	....	....	....	....	....	....	2	320	20
21	....	....	11	1	....	....	....	....	....	....	....	7	....	1	....	....	1	....	7	....	6	....	....	....	....	....	....	....	....	....	1	219	21
22	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	2	....	....	....	....	....	....	....	....	2	81	22
23	....	....	....	....	....	....	....	....	....	....	....	1	....	....	2	....	....	....	3	....	2	3	....	....	....	....	....	....	....	....	....	65	23
24	....	1	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	15	....	1	....	....	....	....	....	....	....	....	....	....	136	24
25	12	3	2	3	....	....	....	....	....	....	9	2	2	3	....	....	10	....	....	6	....	3	....	....	....	1	....	24	....	....	11	283	25
26	14	15	3	24	1	3	....	1	5	5	28	....	6	23	1	1	34	....	1	4	5	8	1	....	....	2	6	10	....	3	25	630	26
27	23	21	....	8	5	4	....	....	....	....	4	....	7	6	....	1	2	1	....	14	....	1	3	....	2	9	1	30	....	3	28	508	27
28	....	....	1	1	....	....	....	....	....	....	3	....	....	2	....	....	....	....	....	....	....	3	1	....	....	....	....	1	....	....	6	49	28
29	3	....	....	....	....	....	....	....	....	....	1	....	1	2	....	....	1	1	....	....	....	....	1	....	2	1	1	2	....	....	2	107	29
30	1	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....	8	40	30
31	1	2	....	1	....	....	....	....	....	....	2	....	....	2	1	....	....	....	....	....	2	....	....	....	....	....	....	3	....	....	2	117	31
32	8	28	....	5	3	9	....	....	....	1	2	....	5	12	2	6	1	....	....	14	1	....	18	....	2	5	1	32	1	2	10	397	32
33	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	105	33
34	7	8	1	16	2	14	....	....	1	1	3	1	7	22	3	5	1	2	....	10	4	4	14	1	3	6	....	24	1	....	8	426	34
35	....	....	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	1	188	35
36	....	2	....	3	1	2	....	....	....	....	1	....	1	....	....	1	....	....	....	1	....	1	....	....	....	1	....	....	....	....	2	72	36
37	1	3	....	....	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	2	....	....	....	....	....	1	....	1	....	....	....	118	37
38	....	....	....	....	....	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	18	38
39	....	....	....	1	....	2	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	52	39
40	....	....	....	6	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	85	40
41	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	25	41
42	2	7	14	8	....	1	....	....	3	1	3	5	3	7	6	....	17	....	1	....	15	18	....	....	6	1	37	1	....	....	4	447	42
43	....	....	3	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	1	14	43
44	1	....	64	1	....	....	....	....	....	....	....	6	....	....	7	....	....	....	4	....	4	44	....	....	....	....	....	....	....	....	5	379	44
45	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	67	45
46	....	....	....	....	....	....	....	6	13	....	23	3	....	4	....	....	41	4	2	....	....	....	....	1	8	....	13	....	....	....	22	205	46
47	....	....	1	....	....	....	....	....	18	....	16	2	....	4	....	....	50	13	....	....	1	....	7	....	4	....	58	....	....	....	18	289	47
48	....	1	....	6	....	2	....	3	4	....	28	9	1	11	....	5	34	1	4	3	3	9	....	2	18	7	7	11	1	....	5	347	48
49	....	....	....	....	....	....	....	1	16	....	5	4	....	2	....	....	37	5	3	....	1	....	....	....	11	....	22	....	....	7	5	167	49
50	1	....	1	....	....	....	....	1	11	....	13	41	....	....	2	....	24	4	30	....	1	1	....	....	15	....	3	....	....	4	13	324	50
51	....	....	....	....	....	1	....	2	1	....	2	....	....	....	....	....	1	2	....	....	....	....	....	1	1	....	....	....	....	....	11	86	51
52	....	1	1	....	....	....	....	9	4	....	8	2	....	1	....	....	4	9	2	....	....	1	....	....	1	....	....	....	....	....	37	198	52
53	....	1	....	4	1	2	....	3	2	....	13	....	1	7	....	3	8	12	1	1	....	....	....	1	....	3	....	....	2	2	9	261	53
54	....	....	....	....	....	....	....	13	....	1	6	....	....	1	....	....	1	18	....	....	....	....	....	1	....	....	....	....	....	....	7	379	54
55	134	1	....	....	....	....	....	....	....	....	3	....	....	4	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	17	163	55
56	16	....	....	....	....	....	....	....	....	....	2	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1	21	56
57	114	1	....	3	1	....	1	....	3	....	28	....	1	29	....	2	11	....	3	3	1	....	....	1	....	4	....	2	....	3	4	260	57
58	34	2	....	....	....	1	....	....	....	....	20	....	....	8	....	3	9	....	....	....	....	....	....	....	....	....	....	....	....	....	4	92	58
59	....	152	....	....	....	....	....	....	....	....	....	....	9	....	....	....	....	....	....	2	....	1	....	....	....	3	....	2	....	....	1	178	59
60	....	....	49	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	50	60
61	....	....	79	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	2	....	....	....	....	....	....	....	....	....	95	61
62	....	....	....	20	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	1	34	62
63	....	....	....	18	....	....	....	....	....	....	1	....	....	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	42	63
64	....	....	....	55	....	2	....	....	....	1	....	....	....	1	12	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	1	140	64
65	....	....	....	16	....	2	....	....	....	....	....	....	....	....	1	....	....	....	....	2	....	2	....	....	....	....	....	....	....	1	1	49	65
66	....	....	....	43	....	1	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	56	66
67	....	1	....	17	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	8	46	67
68	1	2	1	61	....	6	....	....	....	....	1	....	....	....	3	....	1	....	....	....	4	....	....	....	....	....	1	1	....	1	4	176	68
69	5	3	....	125	1	2	....	....	....	....	3	1	....	4	4	1	3	....	....	....	....	1	....	....	....	3	....	6	....	....	6	274	69
70	....	....	....	16	....	....	....	....	....	....	1	....	....	....	1	....	....	....	....	....	....	5	....	....	....	....	....	....	....	....	5	52	70
71	1	....	....	80	....	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	1	1	....	....	....	1	....	1	....	....	....	123	71
72	2	3	....	6	....	93	....	....	....	....	1	....	2	....	....	1	3	....	....	8	....	1	1	....	....	....	....	1	2	....	....	168	72
73	....	....	....	....	....	60	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	72	73
74	....	....	....	....	....	37	....	....	....	....	....	....	....	....	1	....	....	....	....	1	....	....	....	....	....	....	....	....	1	....	....	42	74
75	....	....	....	....	1	....	....	16	3	....	1	....	....	....	....	....	....	....	....	....	....	....	....	4	....	....	....	....	....	....	....	42	75
76	....	....	....	....	....	....	....	....	2	....	190	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	1	....	208	76
77	....	....	5	2	....	....	....	3	42	....	203	1	1	3	2	3	13	1	4	....	....	2	1	2	1	3	....	....	....	....	6	328	77
78	....	....	....	....	1	....	....	....	13	....	84	2	....	1	1	....	1	....	....	1	1	....	....	....	....	....	....	....	....	1	1	116	78
79	....	....	....	....	....	....	....	....	4	....	69	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	2	77	79
80	1	....	....	....	....	....	....	....	8	....	49	....	....	....	....	....	3	1	....	....	....	....	....	....	1	....	....	....	....	....	24	94	80
81	....	....	....	....	....	....	....	....	20	....	369	1	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	3	407	81
82	....	....	....	....	....	....	....	....	3	....	19	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	21	82
83	....	....	....	1	....	....	....	1	33	....	142	....	1	....	....	1	4	1	....	....	1	1	....	2	....	....	....	1	....	....	5	210	83
84	....	1	....	....	....	....	....	1	87	....	371	....	....	3	1	....	1	4	....	....	2	1	....	1	2	1	....	1	....	2	7	510	84
85	....	....	....	....	....	....	....	....	1	....	99	....	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....	1	....	1	2	109	85
86	1	....	....	....	....	....	....	....	....	....	203	....	....	1	....	....	11	....	....	....	....	1	....	....	....	....	....	....	....	....	3	223	86
87	....	....	2	....	....	....	....	....	4	....	1	46	....	....	....	....	3	....	17	....	....	3	....	....	20	....	....	....	....	....	11	120	87
88	....	....	....	....	....	....	....	....	....	....	....	48	....	....	....	....	1	....	2	....	....	....	....	....	....	....	....	....	....	....	....	51	88
89	....	....	....	....	....	....	....	....	....	....	1	99	....	....	....	....	1	....	8	....	....	....	....	....	....	....	....	....	....	....	2	112	89
90	....	....	....	....	....	....	....	....	....	....	....	34	....	....	....	....	....	....	4	....	....	....	....	....	....	....	....	....	....	....	....	38	90
91	....	2	....	....	....	....	....	....	....	....	....	....	33	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	....	2	39	91
92	1	....	....	....	....	....	....	....	....	....	2	....	....	55	....	....	19	....	1	....	....	....	....	....	....	1	....	....	....	....	....	81	92
93	1	1	1	....	1	1	....	....	....	....	2	....	....	139	....	....	6	....	....	....	....	....	1	....	....	....	1	1	....	....	2	171	93
94	....	....	....	4	....	....	....	....	1	....	1	....	....	40	1	....	9	....	....	....	1	1	....	....	....	1	8	....	....	....	....	95	94
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	

TABLE 2.—DISTRIBUTION OF MEDICAL

Number.	NAME OF COLLEGE	1 Alabama....519	2 Arizona....10	3 Arkansas....307	4 California....356	5 Colorado....143	6 Connecticut....243	7 Delaware....34	8 Dist. of Columbia.131	9 Florida....167	10 Georgia....710	11 Idaho....25	12 Illinois....1598	13 Indiana....503	14 Iowa....489	15 Kansas....341	16 Kentucky....359	17 Louisiana....329	18 Maine....151	19 Maryland....291	20 Massachusetts....819	Number.
95	Ohio-Miami Med. Coll. of the Univ. of Cincinnati	....	....	....	....	....	....	....	1	....	....	....	....	6	....	1	17	....	....	....	....	95
96	Starling Ohio Medical College, Columbus	....	....	....	....	....	....	....	....	1	....	....	1	3	1	....	1	....	....	....	....	96
97	Toledo Medical College, Toledo	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	97
98	University of Oklahoma, School of Med., Norman	....	....	....	....	....	1	....	....	....	....	....	....	1	....	2	....	....	....	....	....	98
99	University of Oregon, Medical Dept., Portland	....	....	1	....	....	....	....	....	....	....	1	3	3	2	3	....	....	2	....	1	99
100	Willamette University, Medical Dept., Salem	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	100
101	Hahnemann Med. Coll. and Hosp., Phila.—H.	....	....	....	2	....	1	2	....	....	....	....	....	....	2	....	2	....	1	1	....	101
102	Jefferson Medical College, Philadelphia	3	....	3	1	1	10	9	....	2	5	2	3	7	9	6	5	....	2	1	10	102
103	Medico-Chirurgical College of Philadelphia	1	....	....	2	....	5	2	....	....	....	....	2	....	....	....	....	1	1	1	3	103
104	Temple University, Medical Dept., Philadelphia.*	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	104
105	University of Pennsylvania, Dept. of Medicine	1	2	2	2	3	2	6	2	2	3	1	1	5	....	2	5	3	2	2	6	105
106	Woman's Med. Coll. of Pennsylvania, Phila	....	....	1	2	2	2	....	1	....	....	....	....	....	2	1	....	2	3	1	4	106
107	University of Pittsburgh, Med. Dept	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	107
108	Medical College of South Carolina, Charleston	....	....	....	....	....	....	....	....	11	4	....	....	....	....	....	....	....	....	....	1	108
109	Univ. of South Dakota, Coll. of Med., Vermilion	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	109
110	Lincoln Memorial Univ., Med. Dept., Knoxville	1	....	....	....	1	....	....	....	....	....	....	....	....	....	....	8	....	....	....	....	110
111	Meharry Medical College, Nashville	16	....	14	....	1	....	....	....	5	34	....	....	2	....	6	6	12	....	....	....	111
112	Univ. of Nashville and Tennessee, Dept. of Med.	15	....	6	....	....	1	....	....	5	4	....	1	....	....	....	12	14	....	....	1	112
113	Vanderbilt University, Med. Dept., Nashville	24	....	8	6	....	....	....	....	7	5	....	3	....	1	1	30	8	....	....	1	113
114	College of Physicians and Surgeons, Memphis	2	....	6	....	....	....	....	1	....	3	....	1	....	....	....	1	3	....	....	1	114
115	Memphis Hospital Medical [illegible]	16	....	39	1	1	....	....	....	....	3	....	2	....	....	....	3	68	....	....	....	115
116	Univ. of West Tennessee, M[illegible]	1	....	2	....	....	....	....	....	3	....	....	....	....	....	....	....	2	....	....	....	116
117	Fort Worth University, Med. Dept., Fort Worth	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	....	....	117
118	University of Texas, Dept. of Med., Galveston	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	118
119	Baylor University, College of Medicine, Dallas	....	....	1	....	....	....	....	....	....	1	....	....	....	....	1	....	1	....	....	....	119
120	Southwestern University Medical College, Dallas	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	120
121	Univ. of Utah, Dept. of Med., Salt Lake City	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	121
122	Univ. of Vermont, Coll. of Med., Burlington	....	....	....	....	....	21	....	....	....	....	1	....	....	....	....	....	....	12	....	30	122
123	Medical College of Virginia, Richmond	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	1	....	2	....	123
124	University College of Medicine, Richmond	2	1	....	....	....	....	....	....	1	2	....	....	....	....	....	....	....	....	....	....	124
125	Univ. of Virginia, Dept. of Med., Charlottesville	7	....	3	....	....	....	....	....	1	2	....	....	....	....	....	....	....	....	1	2	125
126	West Virginia Univ., Coll. of Med., Morgantown	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	126
127	Marquette University, Med. Dept., Milwaukee	....	....	....	1	....	....	....	....	....	....	....	1	....	1	....	....	....	....	....	....	127
128	Wisconsin Coll. of Phys. and Surgs., Milwaukee	....	....	....	....	....	....	....	....	....	....	....	3	....	....	....	....	....	....	....	....	128
129	University of Wisconsin, Coll. of Med., Madison	....	....	....	....	....	1	....	....	....	....	....	5	....	....	....	....	....	....	1	1	129
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

H., Homeopathic; E., Eclectic; P., Panpathic; * Total exact; distribution based on that of 1909-10.

(*Continued from page 645*)

CURRICULUM

	No. of Hours of Lectures.	Hours of Laboratory.	Hours of Clinics.	Total.
Histology	30	60	..	90
Embryology	30	60	..	90
Osteology	30	..	..	30
Anatomy	190	230	..	420
Physiology	180	120	..	300
Chemistry and Toxicology	100	200	..	300
Materia Medica	40	20	..	60
Pharmacology	40	20	..	60
Therapeutics	90	..	..	90
Bacteriology	40	100	..	140
Pathology	100	140	..	240
Medical Zoology, Post Mortem Work and Clinical Microscopy	30	60	..	90
Physical Diagnosis	20	..	80	100
Practice of Medicine	180	..	360	540
Surgery	180	..	360	540
Obstetrics	100	..	60	160
Gynecology	50	..	110	160
Pediatrics	40	..	60	100
Eye and Ear	30	..	30	60
Nose and Throat	30	..	30	60
Mental and Nervous Diseases	60	..	60	120
Electro-Therapeutics	20	..	40	60
Genito-Urinary Diseases	30	..	30	60
Dermatology and Syphilis	20	..	20	40
Hygiene and Public Health	30	..	..	30
Dietetics	30	..	..	30
Medical Jurisprudence	30	..	..	30
	1,750	1,010	1,240	4,000

Art. V, Sec. 1, was eliminated Feb. 28, 1911, and the following was substituted:

Art. V. Section 1.—The entire course of four years shall consist of at least 4,000 hours for each student, and shall be grouped in divisions and subdivided into subjects; each division and subject to be allotted the number of hours as shown in the following schedule:

Division 1.—Anatomy, 710 Hours (18 Per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) Gross anatomy (including applied anatomy)	510	120	390
(b) Histologic and microscopic anatomy	135	30	105
(c) Embryology	75	30	45

Division 2.—Physiology and Chemistry, 600 Hours (15 Per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) Inorganic chemistry	180	60	120
(b) Organic chemistry	75	30	45
(c) Physiologic chemistry	104	30	75
(d) Physiology	240	140	100

Division 3.—Pathology, Bacteriology and Hygiene, 450 Hours (11.25 Per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) Bacteriology	135	30	105
(b) Hygiene and general dietetics	45	45	...
(c) Pathology	270	60	210

Division 4.—Pharmacology, Materia Medica and Therapeutics, 240 Hours (6 Per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) Pharmacology	105	40	65
(b) Materia medica and pharmacology	80	...	...
(c) Therapeutics	55	...	...

Division 5.—Medicine and Medical Specialties, 970 Hours (24.25 Per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) General medicine (including clinical microscopy)	640	...	...
(b) Pediatrics	150	...	...
(c) Nervous and mental diseases	105	...	...
(d) Jurisprudence, ethics and economics	30	...	...
(e) Dermatology and syphilis	45	...	...

Division 6.—Surgery and Surgical Specialties, 720 Hours (18 Per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) General surgery	510	...	...
(b) Orthopedic surgery	45	...	...
(c) Genito-urinary diseases	45	...	...
(d) Eye	60	...	...
(e) Ear, nose and throat	60	...	...

Division 7.—Obstetrics and Gynecology, 300 Hours (7.5 Per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) Obstetrics	195	...	...
(b) Gynecology (including some abdominal surgery)	105	...	...

Colleges may reduce the number of hours in any subject not more than 20 per cent. provided that the total number of hours in a division is not reduced. Where the teaching conditions in a college are best subserved, the subject may be, for teaching purposes, transferred from one division to another. When didactic and laboratory hours are specified in any subject, laboratory hours may be substituted for didactic hours.

(*Continued on opposite page*)

	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
Number.	Michigan........407	Minnesota........313	Mississippi........495	Missouri........620	Montana........27	Nebraska........271	Nevada........4	New Hampshire....84	New Jersey........455	New Mexico........11	New York........2162	North Carolina....487	North Dakota........96	Ohio........859	Oklahoma........171	Oregon........111	Pennsylvania....1799	Rhode Island........105	South Carolina....379	South Dakota........87	Tennessee........550	Texas........704	Utah........77	Vermont........96	Virginia........445	Washington........88	West Virginia........220	Wisconsin........459	Wyoming........11	Philippine Is........59	Foreign........579	Totals........19,786	Number.
95	....	....	....	....	....	....	....	....	....	....	2	....	....	118	....	....	1	....	....	....	....	1	....	....	....	....	2	....	....	....	1	149	95
96	....	....	....	....	1	....	....	....	....	....	1	....	1	220	....	....	11	....	....	....	....	....	....	....	....	1	7	....	....	....	3	252	96
97	....	....	....	....	....	....	....	....	....	....	....	....	....	39	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	40	97
98	....	....	....	1	....	....	....	....	....	....	1	....	....	....	53	....	....	....	....	....	....	4	....	....	....	....	....	....	....	....	....	63	98
99	2	2	....	....	....	2	....	....	....	....	3	....	....	2	....	23	1	1	....	2	2	....	....	....	....	4	....	4	....	....	8	72	99
100	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	41	....	....	....	....	....	....	....	....	....	5	....	....	....	....	....	47	100
101	....	....	....	....	....	....	....	....	14	....	5	....	....	2	....	....	94	....	....	....	....	....	....	....	2	1	....	1	....	....	5	135	101
102	1	2	2	....	3	4	....	2	40	....	8	27	1	17	....	4	314	3	4	....	4	4	3	2	8	7	5	2	1	5	7	559	102
103	....	....	....	....	....	....	....	1	27	1	8	....	....	1	....	....	363	....	....	....	....	1	5	1	....	....	....	....	....	8	28	462	103
104	....	....	....	....	....	....	....	....	8	....	....	....	....	....	....	....	69	....	....	....	....	....	....	....	....	....	....	....	....	....	5	82	104
105	2	1	....	2	....	....	....	....	32	....	15	16	....	12	....	2	265	3	3	....	3	4	2	1	6	3	1	2	....	4	14	445	105
106	1	1	....	1	1	....	....	....	8	....	12	1	....	3	....	....	40	1	1	....	1	....	....	1	....	2	1	....	....	3	11	110	106
107	....	....	....	1	....	....	....	....	1	....	....	....	....	8	....	....	220	....	....	....	....	....	....	....	....	....	3	....	....	....	1	240	107
108	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	185	....	....	....	....	....	1	....	....	....	....	....	....	203	108
109	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	6	....	....	....	....	....	....	....	....	....	....	....	7	109
110	....	....	....	....	....	....	....	....	....	....	....	6	....	1	....	....	....	....	2	....	73	....	....	....	7	....	....	....	....	....	2	101	110
111	....	....	31	11	....	....	....	....	1	....	....	8	....	1	7	....	....	....	17	....	54	53	....	....	1	....	2	....	....	....	17	299	111
112	....	....	9	2	....	....	....	....	2	....	4	7	....	....	5	....	....	....	2	....	87	11	....	....	1	....	....	....	....	....	3	192	112
113	1	....	19	12	....	....	....	....	....	....	....	3	....	1	5	....	....	....	3	....	118	21	....	....	....	1	1	....	....	....	....	279	113
114	....	....	35	1	....	....	....	....	....	....	....	1	....	....	2	....	....	....	....	....	51	6	....	....	....	....	....	....	....	1	1	116	114
115	....	....	118	4	....	....	....	....	....	....	....	....	....	....	14	....	....	....	3	....	69	37	....	....	....	....	1	....	....	....	....	379	115
116	....	....	5	....	....	....	....	....	....	....	....	3	....	....	2	....	1	....	1	....	10	4	....	....	....	....	....	....	....	1	....	35	116
117	....	....	....	....	....	....	....	....	....	....	....	....	....	....	6	....	....	....	....	....	....	82	....	....	....	....	....	....	....	....	....	90	117
118	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	172	....	....	....	....	....	....	....	....	2	177	118
119	....	....	1	....	....	....	....	....	....	....	....	1	....	....	2	1	1	....	....	....	1	79	....	....	....	....	....	....	....	....	....	90	119
120	....	....	....	....	....	....	....	....	....	....	....	....	....	3	....	....	....	....	....	....	....	65	....	....	....	....	....	....	....	....	....	69	120
121	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	17	....	....	....	....	....	....	....	....	19	121
122	1	....	....	....	....	....	....	15	3	....	23	....	....	1	....	....	3	3	....	....	....	....	....	68	....	....	....	....	....	....	5	186	122
123	....	1	....	....	....	....	....	....	3	....	6	27	....	....	....	....	3	....	4	....	1	1	....	....	151	1	6	1	....	....	1	210	123
124	....	....	....	....	....	....	....	....	1	....	1	48	....	....	....	....	....	....	1	....	....	....	....	....	83	....	7	....	....	....	2	149	124
125	....	....	4	....	....	....	....	....	....	....	....	9	....	....	....	....	1	....	6	....	1	1	....	....	39	....	1	....	....	....	2	79	125
126	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	12	....	....	1	....	13	126
127	7	32	....	....	1	....	....	....	....	....	....	....	8	1	....	....	....	....	....	....	....	....	....	....	....	....	....	199	....	1	1	253	127
128	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	....	....	....	....	....	....	....	46	....	....	1	55	128
129	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....	....	....	....	....	....	53	....	....	....	48	129
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	

(Continued from opposite page)

The following section was added to Article V, May 6, 1907:

SEC. 2.—Each medical college in membership in the Association shall print in every annual catalogue or announcement a table of the total number of hours work given in said college, arranged both by subjects and years.

The following section was added to Article V, Feb. 28, 1911:

SEC. 3.—Each college in membership in this Association shall print annually a list of its students by classes.

The following colleges are members of the Association: Leland Stanford Junior University Department of Medicine, Palo Alto and San Francisco, Cal.; University of California, Medical Department, Berkeley, Los Angeles and San Francisco, Cal.; University of Southern California, Medical Department, Los Angeles, Cal.; University of Colorado, School of Medicine, Boulder and Denver, Colo.; George Washington University Department of Medicine, Washington, D. C.; Georgetown University School of Medicine, Washington, D. C.; Howard University Medical Department, Washington, D. C.; University of Illinois, College of Medicine, Chicago, Ill.; Northwestern University Medical School, Chicago, Ill.; Indiana University School of Medicine, Bloomington and Indianapolis, Ind.; Drake University College of Medicine, Des Moines, Iowa; State University of Iowa, College of Medicine, Iowa City, Iowa; Kansas Medical College, Medical Department of Washburn College, Topeka, Kan.; University of Kansas, School of Medicine, Lawrence and Rosedale, Kan.; University of Louisville, Medical Department, Louisville, Ky.; Medical Department of the Tulane University of Louisiana, New Orleans, La.; Baltimore Medical College, Baltimore, Md.; College of Physicians and Surgeons, Baltimore, Md.; Johns Hopkins University, Medical Department, Baltimore, Md.; University of Maryland, School of Medicine, Baltimore, Md.; Medical School of Howard University, Boston, Mass.; Tufts College Medical School, Boston, Mass.; Detroit College of Medicine, Detroit, Mich.; University of Michigan, Department of Medicine and Surgery, Ann Arbor, Mich.; University of Minnesota, College of Medicine and Surgery, Minneapolis, Minn.; University of Mississippi Medical Department, Oxford, Miss.; University of Missouri Department of Medicine, Columbia, Mo.; University Medical College, Kansas City, Mo.; St. Louis University School of Medicine, St. Louis, Mo.; Washington University Medical School, St. Louis, Mo.; University of Nebraska, College of Medicine, Lincoln and Omaha, Neb.; John A. Creighton Medical College, Omaha, Neb.; University of Buffalo, Medical Department, Buffalo, N. Y.; University and Bellevue Hospital Medical College, New York, N. Y.; Cornell University Medical College, Ithaca and New York, N. Y.; Syracuse University, College of Medicine, Syracuse, N. Y.; University of North Carolina, Medical Department, Chapel Hill, N. C.; Wake Forest College, School of Medicine, Wake Forest, N. C.; University of North Dakota, College of Medicine, University, N. D.; Western Reserve University, Medical Department, Cleveland, Ohio; Starling-Ohio Medical College, Columbus, Ohio; Ohio-Miami Medical College of the University of Cincinnati, Cincinnati, Ohio; State University of Oklahoma, School of Medicine, Norman, Okla.; Meharry Medical College, Medical Department of Walden University, Nashville, Tenn.; Vanderbilt University, Medical Department, Nashville, Tenn.; Medical College of Virginia, Richmond, Va.; University College of Medicine, Richmond, Va.; University of Wisconsin, College of Medicine, Madison, Wis.

The secretary-treasurer of the Association is Dr. Fred C. Zapffe, 3431 Lexington Street, Chicago.

COLLEGE NOTES

Colleges Closed During the Year.—Thirteen medical colleges have been closed during the year, eight of which were suspended and five by merger with other institutions. The list is as follows:

College of Physicians and Surgeons, Little Rock, Arkansas. Merged into the Medical Department of the University of Arkansas.

Denver and Gross College of Medicine, Denver, Colo. Merged into the University of Colorado School of Medicine.

American Medical Missionary College, Battle Creek, Mich., and Chicago. Merged into the College of Physicians and Surgeons, Chicago.

College of Medicine and Surgery, Physiomedical, Chicago. Absorbed by the Chicago College of Medicine and Surgery.

Reliance Medical College, Chicago. Discontinued.

Southwestern Homeopathic Medical College, Louisville, Ky. Merged into the Hahnemann Medical College and Hospital, Chicago.

Atlantic Medical College, Baltimore, Md., formerly the Southern Homeopathic Medical College. Suspended.

University Medical College, Kansas City, Mo. Suspended.

Knoxville Medical College (Colored), Knoxville, Tenn. Suspended.

College of Physicians and Surgeons, Memphis, Tenn. Merged with, and building to be occupied hereafter by, the Medical Department of the University of Tennessee, which is to be removed from Nashville.

University of Nashville, Medical Department, Nashville, Tenn. Dissolved its union with the University of Tennessee Medical Department and became extinct.

West Virginia University College of Medicine, Morgantown, W. Va. Closed.

The San Jose College of Medicine and Pharmacy of the San Thomas University, Manila, Philippine Islands, has been permanently closed.

(Continued on page 650)

TABLE 2.—DISTRIBUTION OF MEDICAL

Number.	NAME OF COLLEGE	1 Alabama......519	2 Arizona......10	3 Arkansas......307	4 California......356	5 Colorado......143	6 Connecticut......243	7 Delaware......34	8 Dist. of Columbia.131	9 Florida......167	10 Georgia......710	11 Idaho......25	12 Illinois......1598	13 Indiana......503	14 Iowa......489	15 Kansas......341	16 Kentucky......359	17 Louisiana......329	18 Maine......151	19 Maryland......291	20 Massachusetts....619	Number.
95	Ohio-Miami Med. Coll. of the Univ. of Cincinnati								1					5		1	17					95
96	Starling Ohio Medical College, Columbus									1			1	3	1		1					96
97	Toledo Medical College, Toledo													1								97
98	University of Oklahoma, School of Med., Norman						1							1		2						98
99	University of Oregon, Medical Dept., Portland			1								1	3	3	2	3			2		1	99
100	Willamette University, Medical Dept., Salem				1																	100
101	Hahnemann Med. Coll. and Hosp., Phila.—H.				2		1	2							2		2		1	1		101
102	Jefferson Medical College, Philadelphia	3		3	1	1	10	9		2	5	2	3	7	9	6	5		2	1	10	102
103	Medico-Chirurgical College of Philadelphia	1			2		5	2					2					1	1	1	3	103
104	Temple University, Medical Dept., Philadelphia.*																					104
105	University of Pennsylvania, Dept. of Medicine	1	2	2	2	3	2	6	2	2	3	1	1	5		2	5	3	2	2	6	105
106	Woman s Med. Coll. of Pennsylvania, Phila			1	2	2	2		1						2	1		2	3	1	4	106
107	University of Pittsburgh, Med. Dept																					107
108	Medical College of South Carolina, Charleston									11	4										1	108
109	Univ. of South Dakota, Coll. of Med., Vermilion	1																				109
110	Lincoln Memorial Univ., Med. Dept., Knoxville	1				1											8					110
111	Meharry Medical College, Nashville	16		14		1				5	31			2		6	6	12				111
112	Univ. of Nashville and Tennessee, Dept. of Med.	15		6			1			5	4		1				12	14			1	112
113	Vanderbilt University, Med. Dept., Nashville	24		8	6					7	5		3		1	1	30	8			1	113
114	College of Physicians and Surgeons, Memphis	2		6					1		3		1				1	3			1	114
115	Memphis Hospital Medical College, Memphis	16		39	1	1					3		2				3	68				115
116	Univ. of West Tennessee, Med. Dept., Memphis	1		2						3								2				116
117	Fort Worth University, Med. Dept., Fort Worth															1		1				117
118	[illegible] pt. of Med., Galveston			1														1				118
119	[illegible] ge of Medicine, Dallas			1							1					1		1				119
120	[illegible] Medical College, Dallas				1																	120
121	Univ. of Utah, Dept. of Med., Salt Lake City											2										121
122	Univ. of Vermont, Coll. of Med., Burlington						21					1							12		30	122
123	Medical College of Virginia, Richmond				1													1		2		123
124	University College of Medicine, Richmond	2	1							1	2											124
125	Univ. of Virginia, Dept. of Med., Charlottesville	7		3						1	2									1	2	125
	West Virginia Univ., Coll. of Med., Morgantown																					126
	Marquette University, Med. Dept., Milwaukee				1								1		1							127
	sconsin Coll. of Phys. and Surgs., Milwaukee												3									128
	rsity of Wisconsin, Coll. of Med., Madison						1						5							1	1	129
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

New Je —Eclectic; P., Panpathic; * Total exact; distribution based on that of 1909-10.

(from page 645)

Hours of Labora- Hours of Clinics. Total.

New York.	1908	[illegible]								
	1909	1979								
	1910	1972								
	1911	2012	93.0							
Pennsylvania	1908	1920	91.3	155						
	1909	2005	92.9	130	6.0					
	1910	1828	91.9	145	7.3					
	1911	1639	91.1	145	8.1	5	0.2	10	0.6	1799
Rhode Island	1908	92	92.9	5	5.1	0	0	2	2.0	99
	1909	94	94.9	3	3.1	2	2.0	0	0	99
	1910	95	94.0	[illegible]	5.0	0	0	1	1.0	101
	1911	98	95.1	4	3.9	1	1.0	0	0	103
Vermont	1908	93	87.8	10	9.4	[illegible]	2.8	0	0	106
	1909	95	89.6	7	6.6	4	3.8	0	0	106
	1910	93	91.1	7	6.9	2	2.0	0	0	102
	1911	93	96.9	2	2.1	1	1.0	0	0	[illegible]
Virginia.	1908	448	86.0	11	2.7	0	0	59	11.3	[illegible]
	1909	410	85.1	17	3.5	3	0.6	52	10.8	[illegible]
	1910	400	86.0	21	4.5	3	0.7	41	8.8	[illegible]
	1911	396	89.0	15	3.4	2	0.4	32	7.2	[illegible]
West Virginia..	1908	190	65.1	89	30.5	0	0.	13	4.4	[illegible]
	1909	168	62.0	89	32.8	0	0	14	5.2	271
	1910	149	56.0	105	39.5	[illegible]	0.7	10	3.8	266
	1911	146	66.1	66	30.0	4	1.8	4	1.8	220
Totals..	1908	6936	92.0	436	5.8	26	0.3	145	1.9	7,543
	1909	6944	92.3	420	5.6	45	0.5	118	1.6	7,527
	1910	6767	91.8	466	6.4	32	0.5	99	1.3	7,364
	1911	6497	92.3	415	6.0	43	0.5	80	1.2	7,035

This table gives an interesting study of the migration of medical students. It shows that of the 19,148 medical students coming from the various states and attending the medical schools of the United States during the session of 1910-11, 2,330 went to other parts of the country to study medicine. Groups A, B, C and D show where the students from each section go to study medicine. Group A shows where the students coming from the eastern section of the country went to study medicine. Section B shows the same for the students from the middle section of the country. Table C, students from the western section of the country, and Table D, students from the southern section. For example, Group A shows that 7,035 medical students came from the eastern section during 1910-11 and of that number 6,497 entered colleges of the east, 415 attended colleges of the middle states, 43 attended western colleges and 80 attended southern colleges. Figures for the last four college sessions are given and this permits an interesting study by states. For example, Kentucky furnished 635 students in 1908 but only 359 in 1911; nevertheless, where only 9.6 per cent. attended southern colleges in 1907-08, 17.2 per cent. attended southern colleges in 1910-11. Was this due to the fact that the south has better medical colleges now than in 1908 or to the fact that a large number of colleges in the middle section have adopted higher standards? These tables show also the to students coming from each state for each of the las well as from each section. For example, a study of that for each of the four years New York furnish medical students and about 93 per cent. of those stu the colleges of their home section. Group B of Table the southern section furnished 5,467 students for 1907-08 but only 4,848 for the session of 1910-11. also shows a larger percentage of students going to schools in 1911 than went to those schools in 1908; it that a smaller portion of students attended the colle middle states during 1911 than attended those schools in

Division 2.—Physiology and Chemistry, 600 Hours (15 Per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) Inorganic chemistry	180	60	120
(b) Organic chemistry	75	30	45
(c) Physiologic chemistry	104	[illegible]	
(d) Physiology	[illegible]		

Division 3.—[illegible]

	1909	[illegible]	10.4	[illegible]	88.3	1	1.3	0	0.	[illegible]
	1910	[illegible]	[illegible]	[illegible]	91.8	1	1.9	0	0.	[illegible]
	1911	[illegible]	8.3	[illegible]	91.7	0	0.	0	0.	[illegible]
Ohio	1908	110	15.3	[illegible]	[illegible]	5	0.6	11	1.2	[illegible]
	1909	116	12.5	[illegible]	85.5	13	1.4	8	0.8	[illegible]
	1910	[illegible]	11.0	[illegible]	86.5	14	1.6	9	0.9	[illegible]
	1911	101	11.6	[illegible]	85.2	9	1.8	9	1.6	[illegible]
South Dakota	1908	[illegible]	4.2	[illegible]	[illegible]	0	0.	0	0.	[illegible]
	1909	1	1.1	[illegible]	[illegible]	0	0.	0	0.	[illegible]
	1910	4	4.7	[illegible]	94.1	1	1.2	0	0.	[illegible]
	1911	[illegible]	6.4	[illegible]	89.7	3	3.4	0	0.	[illegible]
Wisconsin	1908	[illegible]	4.6	[illegible]	94.2	2	0.4	4	0.8	[illegible]
	1909	18	4.2	[illegible]	94.7	5	1.1	0	0.	[illegible]
	1910	16	3.1	[illegible]	[illegible]	5	0.9	[illegible]		
	1911	21	4.5	427	[illegible]	11	2.5			
Totals	1908	417	5.5	[illegible]	91.8	[illegible]	0.6			
	1909	[illegible]	5.0	[illegible]	91.6	118	1.5			
	1910	617	8.2	[illegible]	88.5	108	1.5			
	1911	[illegible]	5.2	[illegible]	[illegible]	110	2.2			

(Continued from page 639)

Endowments, New Medical Buildings and

Alabama.—The state legislature made an appr $25,000 per year for the running expense of Department of the University of Alabama, Mob

Connecticut.—Yale Medical School receiv $30,000 from Francis E. Loomis of the cla

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TABLE 3.—WHERE STUDENTS STUDY MEDICINE—(Concluded)

C. STUDENTS FROM THE WESTERN STATES

Western States.	Year.	Attending Medical Schools in the								Totals.
		East.		Middle States.		West.		South.		
		Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	
Arizona	1908	1	6.7	4	26.7	2	13.3	8	53.3	15
	1909	1	8.3	3	25.0	2	16.7	6	50.0	12
	1910	2	40.0	1	20.0	0	0.	2	40.0	5
	1911	3	30.0	3	30.0	2	20.0	2	20.0	10
California	1908	55	13.5	39	9.6	306	75.0	8	1.9	408
	1909	52	18.4	33	11.7	192	68.1	5	1.8	282
	1910	48	13.4	26	7.2	277	77.2	8	2.2	359
	1911	53	15.1	30	7.8	266	74.1	10	3.0	359
Colorado	1908	9	5.8	28	17.9	117	75.0	2	1.3	156
	1909	10	6.7	21	14.0	116	77.3	3	2.0	150
	1910	13	8.3	29	18.5	112	71.3	3	1.9	157
	1911	14	9.8	31	21.7	93	65.0	5	3.5	143
Idaho	1908	2	8.3	17	70.9	5	20.8	0	0.	24
	1909	1	3.8	16	61.6	8	30.8	1	3.8	26
	1910	1	4.8	11	52.2	9	42.8	0	0.	21
	1911	5	20.0	14	56.0	6	24.0	0	0.	25
Montana	1908	8	18.6	32	74.4	1	2.3	2	4.7	43
	1909	6	19.4	21	67.7	4	12.9	0	0.	31
	1910	8	21.6	25	67.6	4	10.8	0	0.	37
	1911	8	29.6	18	66.7	1	3.7	0	0.	27
Nevada	1908	1	12.5	3	37.5	3	37.5	1	12.5	8
	1909	1	12.5	3	37.5	4	50.0	0	0.	8
	1910	0	0.	5	83.3	1	16.7	0	0.	6
	1911	0	0.	1	25.0	3	75.0	0	0.	4
New Mexico	1908	2	18.2	3	27.3	2	18.2	4	36.3	11
	1909	3	37.5	4	50.0	1	12.5	0	0.	8
	1910	3	27.3	5	45.5	1	9.1	2	18.1	11
	1911	2	18.2	9	81.8	0	0.	0	0.	11
Oregon	1908	22	16.8	15	11.5	92	70.2	2	1.5	131
	1909	19	16.4	19	16.4	77	66.3	1	0.9	116
	1910	15	11.5	25	19.2	90	69.3	0	0.	130
	1911	19	17.1	21	18.9	70	63.1	1	0.9	111
Utah	1908	35	35.4	34	34.3	29	29.3	1	1.0	99
	1909	22	29.3	32	42.7	20	26.7	1	1.3	75
	1910	25	28.4	35	39.8	26	29.6	2	2.2	88
	1911	18	23.4	40	51.9	19	24.7	0	0.	77
Washington	1908	26	25.2	47	45.7	26	25.2	4	3.9	103
	1909	29	32.6	36	40.4	21	23.6	3	3.4	89
	1910	26	29.3	40	44.9	21	23.6	2	2.2	89
	1911	30	34.1	43	48.9	14	15.9	1	1.1	88
Wyoming	1908	1	16.7	4	66.7	1	16.7	0	0.	6
	1909	3	21.4	5	35.7	5	35.7	1	7.2	14
	1910	3	27.3	5	45.4	3	27.3	0	0.	11
	1911	4	36.3	6	54.5	1	9.2	0	0.	11
Totals	1908	162	16.1	226	22.5	584	58.2	32	3.2	1004
	1909	147	18.1	193	23.8	450	55.5	21	2.6	811
	1910	144	15.8	207	22.6	544	59.5	19	2.1	914
	1911	156	18.1	216	24.8	475	55.0	19	2.1	866

D. STUDENTS FROM THE SOUTHERN STATES

Southern States.	Year.	Attending Medical Schools in the								Totals.
		East.		Middle States.		West.		South.		
		Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	
Alabama	1908	36	5.3	24	3.5	0	0.	633	91.2	683
	1909	116	12.5	792	85.3	13	1.4	8	0.8	929
	1910	33	5.2	27	4.3	1	0.2	572	90.3	633
	1911	32	5.8	17	2.9	1	0.2	499	91.1	549
Arkansas	1908	20	4.8	60	14.3	0	0.	339	80.9	419
	1909	20	5.2	47	12.2	0	0.	317	82.6	384
	1910	18	4.5	56	14.3	1	0.5	317	80.7	392
	1911	17	5.5	42	13.7	1	0.5	247	80.5	307
Florida	1908	19	14.4	9	6.8	0	0.	104	78.8	132
	1909	27	17.2	9	5.7	0	0.	121	77.1	157
	1910	22	15.4	12	8.4	1	0.7	108	75.5	143
	1911	31	18.8	8	4.8	1	0.6	127	75.8	167
Georgia	1908	51	7.8	17	2.6	1	0.1	586	89.5	655
	1909	50	7.6	15	2.2	1	0.2	593	90.0	659
	1910	45	6.4	13	1.9	0	0.	644	91.7	702
	1911	51	7.3	20	2.8	0	0.	639	89.9	710
Louisiana	1908	19	3.9	30	6.2	0	0.	438	89.9	487
	1909	20	4.4	31	6.8	1	0.2	404	88.6	456
	1910	14	3.7	23	6.1	3	0.8	336	89.4	376
	1911	17	5.9	13	3.9	1	0.3	298	90.6	329
Mississippi	1908	16	2.7	39	6.5	1	0.4	547	90.4	603
	1909	18	3.0	40	6.7	1	0.2	534	90.1	593
	1910	17	3.0	37	6.6	0	0.	506	90.4	560
	1911	17	3.2	23	4.7	0	0.	455	92.1	495
North Carolina	1908	158	31.5	13	2.5	2	0.4	329	65.6	502
	1909	170	33.1	11	2.1	1	0.2	332	64.6	514
	1910	174	35.3	11	2.2	0	0.	308	62.5	493
	1911	201	41.0	9	1.9	0	0.	277	57.1	487
Oklahoma	1908	8	5.3	41	27.0	1	0.7	102	67.0	152
	1909	8	4.3	55	29.6	0	0.	123	66.1	186
	1910	6	3.1	52	26.5	0	0.	134	68.4	192
	1911	8	4.7	40	23.4	1	0.6	122	71.3	171
South Carolina	1908	73	21.3	9	2.6	0	0.	261	76.1	343
	1909	66	16.8	12	3.0	1	0.3	314	79.9	393
	1910	75	18.2	8	1.9	0	0.	330	79.9	413
	1911	72	18.8	6	1.6	1	0.2	300	79.4	379
Tennessee	1908	19	3.1	45	7.3	1	0.1	552	89.5	617
	1909	21	3.9	38	7.1	0	0.	478	89.0	537
	1910	26	4.5	43	7.6	0	0.	500	87,9	569
	1911	25	4.5	36	6.5	3	0.6	486	88.4	550
Texas	1908	41	4.7	113	12.9	3	0.4	717	82.0	874
	1909	39	5.2	76	10.1	7	0.9	629	83.8	751
	1910	45	6.3	70	9.7	6	0.8	598	83.2	719
	1911	36	5.0	53	7.5	8	1.2	607	86.3	704
Totals	1908	460	8.4	400	7.3	9	0.1	4598	84.2	5467
	1909	473	8.9	358	6.7	12	0.3	4474	84.1	5317
	1910	475	9.1	352	6.8	12	0.3	4353	83.8	5192
	1911	507	10.4	267	5.5	17	0.3	4057	83.8	4848
Average 1908, 1909 1910 and 1911	A	6771	92.1	434	5.9	37	0.5	110	1.5	7352
	B	437	5.9	6678	90.6	105	1.4	154	2.1	7374
	C	152	16.9	210	23.4	513	57.1	23	2.6	898
	D	479	9.2	344	6.6	12	0.2	4370	84.0	5205
Where migrating students went.	1908	1039	40.8	1062	41.7	91	3.5	357	14.0	2549
	1909	1000	41.2	971	40.0	175	7.1	284	11.7	2430
	1910	1092	42.7	1020	39.9	139	5.5	301	11.9	2555
	1911	998	42.6	895	38.6	200	8.6	237	10.2	2330

(*Continued from opposite page*)

sum $20,000 is for medical research and $10,000 is to go toward the endowment of the university clinic.

Georgia.—The Atlanta College of Physicians and Surgeons received a gift of $5,000 from Dr. W. S. Elkin, which was expended in equipping the departments of embryology, histology and physiology.

—The Medical College of Georgia received $46,000 from the citizens of Augusta, for a new college building.

Illinois.—The legislature appropriated $120,000 for the College of Medicine of the University of Illinois (The College of Physicians and Surgeons, Chicago). This is $60,000 per year for two years.

—The sum of $65,000 has been donated by Mrs. Anna W. Phelps to provide a new site for the Hahnemann Hospital, Chicago. In his will the late Erskine M. Phelps had bequeathed $30,000 for a new hospital building and $75,000 for a nurses home. It is stated that the Hahnemann Medical College intends to sell its present college building and will erect another building on the new site.

—A gift of $250,000 was received by Northwestern University Medical School, Chicago, from Mr. James A. Patten, to endow and maintain a chair of medical research.

Indiana.—Property valued at $200,000 was donated by Dr. and Mrs. R. W. Long of Indianapolis toward the establishing of a state hospital under the direction of the Indiana University School of Medicine. The school also received a bonus of $25,000 annually through the last legislature.

Iowa.—One new building at a cost of $30,000 has been completed by the Drake University College of Medicine, Des Moines, and a second building which will cost a like sum is now in course of construction.

—An addition has been made to the University Hospital of the State University of Iowa College of Medicine, at a cost of $100,000.

Maryland.—The University of Maryland School of Medicine has received pledges amounting to $7,250 toward an endowment for the department of pathology.

(*Continued on next page*)

TABLE 3.—WHERE STUDENTS STUDY MEDICINE

A. STUDENTS FROM THE EASTERN STATES

Eastern States.	Year.	Attending Medical Schools in the								Totals.
		East.		Middle States.		West.		South.		
		Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	
Connecticut........	1908	264	96.7	6	2.2	0	0.	3	1.1	273
	1909	255	97.0	5	1.9	1	0.4	2	0.7	263
	1910	258	95.2	8	2.9	1	0.4	4	1.5	271
	1911	230	94.6	7	2.9	2	0.8	4	1.7	243
Delaware...........	1908	52	98.1	1	1.9	0	0.	0	0.	53
	1909	53	98.1	0	0.	1	1.9	0	0.	54
	1910	38	97.4	0	0.	0	0.	1	2.6	39
	1911	34	100.0	0	0.	0	0.	0	0.	34
Dist. of Columbia..	1908	117	96.0	2	1.6	1	0.8	2	1.6	122
	1909	109	92.4	4	3.4	0	0.	5	4.2	118
	1910	109	94.0	5	4.3	0	0.	2	1.7	116
	1911	119	90.8	7	5.4	4	3.0	1	0.8	131
Maine..............	1908	172	94.5	6	3.3	2	1.1	2	1.1	182
	1909	165	94.8	5	2.9	3	1.7	1	0.6	174
	1910	149	97.4	4	2.6	0	0.	0	0.	153
	1911	144	90.3	4	2.7	2	1.3	1	0.7	151
Maryland..........	1908	236	95.5	6	2.4	1	0.5	4	1.6	247
	1909	302	97.1	4	1.3	0	0.	5	1.6	311
	1910	298	97.4	4	1.3	0	0.	4	1.3	306
	1911	288	99.0	3	1.0	0	0.	0	0.	291
Massachusetts.....	1908	835	97.4	15	1.7	4	0.5	3	0.4	857
	1909	789	97.0	12	1.5	7	0.9	5	0.6	813
	1910	778	96.2	20	2.5	4	0.4	7	0.9	809
	1911	782	95.5	22	2.7	8	1.0	7	0.8	819
New Hampshire....	1908	113	95.0	4	3.4	1	0.8	1	0.8	119
	1909	102	99.0	1	1.0	0	0.	0	0.	103
	1910	95	97.9	0	0.	2	2.1	0	0.	97
	1911	81	96.4	1	1.2	2	2.4	0	0.	84
New Jersey.........	1908	426	94.2	18	4.0	2	0.5	6	1.3	452
	1909	438	97.1	10	2.2	1	0.3	2	0.4	451
	1910	445	94.9	16	3.4	1	0.2	7	1.5	469
	1911	433	95.1	13	2.9	1	0.2	8	1.8	455
New York..........	1908	1978	93.5	105	5.0	8	0.4	25	1.1	2116
	1909	1959	92.3	133	6.3	12	0.5	19	0.9	2123
	1910	1972	93.0	126	5.9	10	0.5	12	0.6	2120
	1911	2012	93.0	126	5.9	11	0.5	13	0.6	2162
Pennsylvania......	1908	1920	91.3	155	7.4	4	0.2	25	1.1	2104
	1909	2005	92.9	130	6.0	11	0.5	13	0.6	2159
	1910	1828	91.9	145	7.3	7	0.3	10	0.5	1990
	1911	1639	91.1	145	8.1	5	0.2	10	0.6	1799
Rhode Island.......	1908	92	92.9	5	5.1	0	0.	2	2.0	99
	1909	94	94.9	3	3.1	2	2.0	0	0.	99
	1910	95	94.0	5	5.0	0	0.	1	1.0	101
	1911	99	95.1	4	3.9	1	1.0	0	0.	105
Vermont...... ...	1908	93	87.8	10	9.4	3	2.8	0	0.	103
	1909	95	89.6	7	6.6	4	3.8	0	0.	106
	1910	93	91.1	7	6.9	2	2.0	0	0.	102
	1911	93	96.9	2	2.1	1	1.0	0	0.	96
Virginia.	1908	448	86.0	14	2.7	0	0.	59	11.3	521
	1909	410	85.1	17	3.5	3	0.6	52	10.8	482
	1910	400	86.0	21	4.5	3	0.7	41	8.8	465
	1911	396	89.0	15	3.4	2	0.4	32	7.2	445
West Virginia......	1908	190	65.1	89	30.5	0	0.	13	4.4	292
	1909	168	62.0	89	32.8	0	0.	14	5.2	271
	1910	149	56.0	105	39.5	2	0.7	10	3.8	266
	1911	146	66.4	66	30.0	4	1.8	4	1.8	220
Totals...........	1908	6936	92.0	436	5.8	26	0.3	145	1.9	7543
	1909	6944	92.3	420	5.6	45	0.5	118	1.6	7527
	1910	6707	91.8	466	6.4	32	0.5	99	1.3	7304
	1911	6497	92.3	415	6.0	43	0.5	80	1.2	7035

B. STUDENTS FROM THE MIDDLE STATES

Middle States.	Year.	Attending Medical Schools in the								Totals.
		East.		Middle States.		West.		South.		
		Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	
Illinois.............	1908	55	3.1	1651	94.4	14	0.8	29	1.7	1749
	1909	54	2.8	1832	95.4	14	0.8	20	1.0	1920
	1910	44	2.3	1884	96.2	14	0.6	17	0.9	1959
	1911	38	2.4	1535	96.1	17	1.1	8	0.4	1598
Indiana............	1908	23	3.2	680	94.6	9	1.2	7	1.0	719
	1909	29	4.8	565	92.6	9	1.5	7	1.1	610
	1910	28	4.9	530	92.8	5	0.9	8	1.4	571
	1911	28	5.6	455	90.5	15	3.0	5	0.9	503
Iowa...............	1908	26	3.6	676	94.4	8	1.1	6	0.9	716
	1909	35	4.8	658	91.1	27	3.7	2	0.4	722
	1910	30	4.7	582	91.5	22	3.5	2	0.3	636
	1911	28	5.5	429	87.9	31	6.4	1	0.2	489
Kansas............	1908	26	5.6	418	89.9	3	0.6	18	3.9	465
	1909	20	5.2	349	90.2	9	2.3	9	2.3	387
	1910	26	6.3	362	87.9	12	2.9	12	2.9	412
	1911	16	4.7	300	88.0	13	3.8	12	3.5	341
Kentucky..........	1908	33	5.2	541	85.2	0	0.	61	9.6	635
	1909	28	5.6	401	80.7	6	1.2	62	12.5	497
	1910	29	6.8	331	77.3	2	0.5	66	15.4	428
	1911	36	10.0	259	72.1	2	1.7	62	17.2	359
Michigan..........	1908	24	4.9	457	92.7	4	0.8	8	1.6	493
	1909	11	2.2	470	95.7	6	1.4	4	0.7	491
	1910	11	2.5	429	95.6	6	1.3	3	0.6	449
	1911	9	2.2	388	95.3	7	1.7	3	0.8	407
Minnesota.........	1908	21	5.7	350	94.3	0	0.	0	0.	371
	1909	25	7.2	313	90.2	7	2.0	2	0.6	347
	1910	16	4.7	313	92.6	6	1.8	3	0.9	338
	1911	12	3.6	291	93.1	9	2.9	1	0.4	313
Missouri...........	1908	26	2.8	851	92.6	9	1.0	33	3.6	919
	1909	27	3.4	743	91.4	12	1.3	31	3.9	813
	1910	28	3.5	734	91.0	12	1.4	33	4.1	807
	1911	21	3.3	550	88.7	12	2.0	37	6.0	620
Nebraska..........	1908	12	3.6	317	95.5	2	0.6	1	0.3	332
	1909	8	2.3	329	95.1	9	2.6	0	0.	346
	1910	8	2.7	285	94.6	8	2.7	0	0.	301
	1911	10	3.7	250	92.2	11	4.1	0	0.	271
North Dakota......	1908	6	7.9	70	92.1	0	0.	0	0.	76
	1909	8	10.4	68	88.3	1	1.3	0	0.	77
	1910	7	7.2	89	91.8	1	1.0	0	0.	97
	1911	8	8.3	88	91.7	0	0.	0	0.	96
Ohio...............	1908	140	15.3	756	82.9	5	0.6	11	1.2	912
	1909	116	12.5	792	85.3	13	1.4	8	0.8	929
	1910	99	11.0	780	86.5	14	1.6	9	0.9	902
	1911	101	11.6	740	86.2	9	1.6	9	1.6	859
South Dakota......	1908	3	4.2	66	93.0	0	0.	2	2.8	71
	1909	1	1.1	86	98.9	0	0.	0	0.	87
	1910	4	4.7	80	94.1	1	1.2	0	0.	85
	1911	6	6.9	78	89.7	3	3.4	0	0.	87
Wisconsin..........	1908	22	4.6	450	94.2	2	0.4	4	0.8	478
	1909	18	4.2	407	94.7	5	1.1	0	0.	430
	1910	16	3.1	498	96.0	5	0.9	0	0.	519
	1911	21	4.5	427	93.0	11	2.5	0	0.	459
Totals...........	1908	417	5.3	7283	91.8	56	0.6	180	2.3	7936
	1909	380	5.0	7013	91.6	118	1.5	145	1.9	7656
	1910	617	8.2	6626	88.3	108	1.5	153	2.0	7504
	1911	334	5.2	5790	90.5	140	2.2	138	2.1	6402

This table gives an interesting study of the migration of medical students. It shows that of the 19,148 medical students coming from the various states and attending the medical schools of the United States during the session of 1910-11, 2,330 went to other parts of the country to study medicine. Groups A, B, C and D show where the students from each section go to study medicine. Group A shows where the students coming from the eastern section of the country went to study medicine. Section B shows the same for the students from the middle section of the country. Table C, students from the western section of the country, and Table D, students from the southern section. For example, Group A shows that 7,035 medical students came from the eastern section during 1910-11 and of that number 6,497 entered colleges of the east, 415 attended colleges of the middle states, 43 attended western colleges and 80 attended southern colleges. Figures for the last four college sessions are given and this permits an interesting study by states. For example, Kentucky furnished 635 students in 1908 but only 359 in 1911; nevertheless, where only 9.6 per cent. attended southern colleges in 1907-08, 17.2 per cent. attended southern colleges in 1910-11. Was this due to the fact that the south has better medical colleges now than in 1908 or to the fact that a large number of colleges in the middle section have adopted higher standards? These tables show also the total number of students coming from each state for each of the last four years as well as from each section. For example, a study of Group A shows that for each of the four years New York furnished over 2,100 medical students and about 93 per cent. of those students attended the colleges of their home section. Group D of Table 3 shows that the southern section furnished 5,467 students for the session of 1907-08 but only 4,848 for the session of 1910-11. This section also shows a larger percentage of students going to the eastern schools in 1911 than went to those schools in 1908; it also shows that a smaller portion of students attended the colleges of the middle states during 1911 than attended those schools in 1908.

(*Continued from page 649*)

Endowments, New Medical Buildings and Hospitals

Alabama.—The state legislature made an appropriation of $25,000 per year for the running expense of the Medical Department of the University of Alabama, Mobile.

Connecticut.—Yale Medical School received a donation of $30,000 from Francis E. Loomis of the class of 1864. Of this

(*Continued on opposite page*)

TABLE 3.—WHERE STUDENTS STUDY MEDICINE—(Concluded)

C. STUDENTS FROM THE WESTERN STATES

Western States.	Year.	Attending Medical Schools in the								Totals.
		East.		Middle States.		West.		South.		
		Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	
Arizona	1908	1	6.7	4	26.7	2	13.3	8	53.3	15
	1909	1	8.3	3	25.0	2	16.7	6	50.0	12
	1910	2	40.0	1	20.0	0	0.	2	40.0	5
	1911	3	30.0	3	30.0	2	20.0	2	20.0	10
California	1908	55	13.5	39	9.6	306	75.0	8	1.9	408
	1909	52	18.4	33	11.7	192	68.1	5	1.8	282
	1910	48	13.4	26	7.2	277	77.2	8	2.2	359
	1911	53	15.1	30	7.8	266	74.1	10	3.0	359
Colorado	1908	9	5.8	28	17.9	117	75.0	2	1.3	156
	1909	10	6.7	21	14.0	116	77.3	3	2.0	150
	1910	13	8.3	29	18.5	112	71.3	3	1.9	157
	1911	14	9.8	31	21.7	93	65.0	5	3.5	143
Idaho	1908	2	8.3	17	70.9	5	20.8	0	0.	24
	1909	1	3.8	16	61.6	8	30.8	1	3.8	26
	1910	1	4.8	11	52.2	9	42.8	0	0.	21
	1911	5	20.0	14	56.0	6	24.0	0	0.	25
Montana	1908	8	18.6	32	74.4	1	2.3	2	4.7	43
	1909	6	19.4	21	67.7	4	12.9	0	0.	31
	1910	8	21.6	25	67.6	4	10.8	0	0.	37
	1911	8	29.6	18	66.7	1	3.7	0	0.	27
Nevada	1908	1	12.5	3	37.5	3	37.5	1	12.5	8
	1909	1	12.5	3	37.5	4	50.0	0	0.	8
	1910	0	0.	5	83.3	1	16.7	0	0.	6
	1911	0	0.	1	25.0	3	75.0	0	0.	4
New Mexico	1908	2	18.2	3	27.3	2	18.2	4	36.3	11
	1909	3	37.5	4	50.0	1	12.5	0	0.	8
	1910	3	27.3	5	45.5	1	9.1	2	18.1	11
	1911	2	18.2	9	81.8	0	0.	0	0.	11
Oregon	1908	22	16.8	15	11.5	92	70.2	2	1.5	131
	1909	19	16.4	19	16.4	77	66.3	1	0.9	116
	1910	15	11.5	25	19.2	90	69.3	0	0.	130
	1911	19	17.1	21	18.9	70	63.1	1	0.9	111
Utah	1908	35	35.4	34	34.3	29	29.3	1	1.0	99
	1909	22	29.3	32	42.7	20	26.7	1	1.3	75
	1910	25	28.4	35	39.8	26	29.6	2	2.2	88
	1911	18	23.4	40	51.9	19	24.7	0	0.	77
Washington	1908	26	25.2	47	45.7	26	25.2	4	3.9	103
	1909	29	32.0	36	40.4	21	23.6	3	3.4	89
	1910	26	29.3	40	44.9	21	23.6	2	2.2	89
	1911	30	34.1	43	48.9	14	15.9	1	1.1	88
Wyoming	1908	1	16.7	4	66.7	1	16.7	0	0.	6
	1909	3	21.4	5	35.7	5	35.7	1	7.2	14
	1910	3	27.3	5	45.4	3	27.3	0	0.	11
	1911	4	36.3	6	54.5	1	9.2	0	0.	11
Totals	1908	162	16.1	226	22.5	584	58.2	32	3.2	1004
	1909	147	18.1	193	23.8	450	55.5	21	2.6	811
	1910	144	15.8	207	22.6	544	59.5	19	2.1	914
	1911	156	18.1	216	24.8	475	55.0	19	2.1	866

(Continued from opposite page)

sum $20,000 is for medical research and $10,000 is to go toward the endowment of the university clinic.

Georgia.—The Atlanta College of Physicians and Surgeons received a gift of $5,000 from Dr. W. S. Elkin, which was expended in equipping the departments of embryology, histology and physiology.

—The Medical College of Georgia received $46,000 from the citizens of Augusta, for a new college building.

Illinois.—The legislature appropriated $120,000 for the College of Medicine of the University of Illinois (The College of Physicians and Surgeons, Chicago). This is $60,000 per year for two years.

—The sum of $65,000 has been donated by Mrs. Anna W. Phelps to provide a new site for the Hahnemann Hospital, Chicago. In his will the late Erskine M. Phelps had bequeathed $30,000 for a new hospital building and $75,000 for a nurses home. It is stated that the Hahnemann Medical College intends to sell its present college building and will erect another building on the new site.

—A gift of $250,000 was received by Northwestern University Medical School, Chicago, from Mr. James A. Patten, to endow and maintain a chair of medical research.

D. STUDENTS FROM THE SOUTHERN STATES

Southern States.	Year.	Attending Medical Schools in the								Totals.
		East.		Middle States.		West.		South.		
		Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	
Alabama	1908	36	5.3	24	3.5	0	0.	633	91.2	683
	1909	116	12.5	792	85.3	13	1.4	8	0.8	929
	1910	33	5.2	27	4.3	1	0.2	572	90.3	633
	1911	32	5.8	17	2.9	1	0.2	499	91.1	549
Arkansas	1908	20	4.8	60	14.3	0	0.	339	80.9	419
	1909	20	5.2	47	12.2	0	0.	317	82.6	384
	1910	18	4.5	56	14.3	1	0.5	317	80.7	392
	1911	17	5.5	42	13.7	1	0.5	247	80.5	307
Florida	1908	19	14.4	9	6.8	0	0.	104	78.8	132
	1909	27	17.2	9	5.7	0	0.	121	77.1	157
	1910	22	15.4	12	8.4	1	0.7	108	75.5	143
	1911	31	18.8	8	4.8	1	0.6	127	75.8	167
Georgia	1908	51	7.8	17	2.6	1	0.1	586	89.5	655
	1909	50	7.6	15	2.2	1	0.2	593	90.0	659
	1910	45	6.4	13	1.9	0	0.	644	91.7	702
	1911	51	7.3	20	2.8	0	0.	639	89.9	710
Louisiana	1908	19	3.9	30	6.2	0	0.	438	89.9	487
	1909	20	4.4	31	6.8	1	0.2	404	88.6	456
	1910	14	3.7	23	6.1	3	0.8	336	89.4	376
	1911	17	5.9	13	3.9	1	0.3	298	90.6	329
Mississippi	1908	16	2.7	39	6.5	1	0.4	547	90.4	603
	1909	18	3.0	40	6.7	1	0.2	534	90.1	593
	1910	17	3.0	37	6.6	0	0.	506	90.4	560
	1911	17	3.2	23	4.7	0	0.	455	92.1	495
North Carolina	1908	158	31.5	13	2.5	2	0.4	329	65.6	502
	1909	170	33.1	11	2.1	1	0.2	332	64.6	514
	1910	174	35.3	11	2.2	0	0.	308	62.5	493
	1911	201	41.0	9	1.9	0	0.	277	57.1	487
Oklahoma	1908	8	5.3	41	27.0	1	0.7	102	67.0	152
	1909	8	4.3	55	29.6	0	0.	123	66.1	186
	1910	6	3.1	52	26.5	0	0.	134	68.4	192
	1911	8	4.7	40	23.4	1	0.6	122	71.3	171
South Carolina	1908	73	21.3	9	2.6	0	0.	261	76.1	343
	1909	66	16.8	12	3.0	1	0.3	314	79.9	393
	1910	75	18.2	8	1.9	0	0.	330	79.9	413
	1911	72	18.8	6	1.6	1	0.2	300	79.4	379
Tennessee	1908	19	3.1	45	7.3	1	0.1	552	89.5	617
	1909	21	3.9	38	7.1	0	0.	478	89.0	537
	1910	26	4.5	43	7.6	0	0.	500	87.9	569
	1911	25	4.5	36	6.5	3	0.6	486	88.4	550
Texas	1908	41	4.7	113	12.9	3	0.4	717	82.0	874
	1909	39	5.2	76	10.1	7	0.9	629	83.8	751
	1910	45	6.3	70	9.7	6	0.8	598	83.2	719
	1911	36	5.0	53	7.5	8	1.2	607	86.3	704
Totals	1908	460	8.4	400	7.3	9	0.1	4598	84.2	5467
	1909	473	8.9	358	6.7	12	0.3	4474	84.1	5317
	1910	475	9.1	352	6.8	12	0.3	4353	83.8	5192
	1911	507	10.4	267	5.5	17	0.3	4057	83.8	4848
Average 1908, 1909 1910 and 1911	A	6771	92.1	434	5.9	37	0.5	110	1.5	7352
	B	437	5.9	6678	90.6	105	1.4	154	2.1	7374
	C	152	16.9	210	23.4	513	57.1	23	2.6	898
	D	479	9.2	344	6.6	12	0.2	4370	84.0	5205
Where migrating students went.	1908	1039	40.8	1062	41.7	91	3.5	357	14.0	2549
	1909	1000	41.2	971	40.0	175	7.1	284	11.7	2430
	1910	1092	42.7	1020	39.9	139	5.5	301	11.9	2555
	1911	958	42.6	895	38.6	200	8.6	237	10.2	2330

Indiana.—Property valued at $200,000 was donated by Dr. and Mrs. R. W. Long of Indianapolis toward the establishing of a state hospital under the direction of the Indiana University School of Medicine. The school also received a bonus of $25,000 annually through the last legislature.

Iowa.—One new building at a cost of $30,000 has been completed by the Drake University College of Medicine, Des Moines, and a second building which will cost a like sum is now in course of construction.

—An addition has been made to the University Hospital of the State University of Iowa College of Medicine, at a cost of $100,000.

Maryland.—The University of Maryland School of Medicine has received pledges amounting to $7,250 toward an endowment for the department of pathology.

(Continued on next page)

A. STUDENTS FROM THE EASTERN STATES

		Attending Medical Schools in the								
		East.		Middle States.		West.		South.		
Eastern States.	Year.	Students.	Percentage.	Students.	Percentage.	Students.	Percentage	Students.	Percentage.	Totals.
Connecticut........	1908	264	96.7	6	2.2	0	0.	3	1.1	273
	1909	255	97.0	5	1.9	1	0.4	2	0.7	263
	1910	258	95.2	8	2.9	1	0.4	4	1.5	271
	1911	230	94.6	7	2.9	2	0.8	4	1.7	243
Delaware...........	1908	52	98.1	1	1.9	0	0.	0	0.	53
	1909	53	98.1	0	0.	1	1.9	0	0.	54
	1910	38	97.4	0	0.	0	0.	1	2.6	39
	1911	34	100.0	0	0.	0	0.	0	0.	34
Dist. of Columbia..	1908	117	96.0	2	1.6	1	0.8	2	1.6	122
	1909	109	92.4	4	3.4	0	0.	5	4.2	118
	1910	109	94.0	5	4.3	0	0.	2	1.7	116
	1911	119	90.8	7	5.4	4	3.0	1	0.8	131
Maine........... ..	1908	172	94.5	6	3.3	2	1.1	2	1.1	182
	1909	165	94.8	5	2.9	3	1.7	1	0.6	174
	1910	149	97.4	4	2.6	0	0.	0	0.	153
	1911	144	90.3	4	2.7	2	1.3	1	0.7	151
Maryland..........	1908	236	95.5	6	2.4	1	0.5	4	1.6	247
	1909	302	97.1	4	1.3	0	0.	5	1.6	311
	1910	298	97.4	4	1.3	0	0.	4	1.3	306
	1911	288	99.0	3	1.0	0	0.	0	0.	291
Massachusetts.....	1908	835	97.4	15	1.7	4	0.5	3	0.4	857
	1909	789	97.0	12	1.5	7	0.9	5	0.6	813
	1910	778	96.2	20	2.5	4	0.4	7	0.9	809
	1911	782	95.5	22	2.7	8	1.0	7	0.8	819
New Hampshire....	1908	113	95.0	4	3.4	1	0.8	1	0.8	119
	1909	102	99.0	1	1.0	0	0.	0	0.	103
	1910	95	97.9	0	0.	2	2.1	0	0.	97
	1911	81	96.4	1	1.2	2	2.4	0	0.	84
New Jersey......	1908	426	94.2	18	4.0	2	0.5	6	1.3	452
	1909	438	97.1	10	2.2	1	0.3	2	0.4	451
	1910	445	94.9	16	3.4	1	0.2	7	1.5	469
	1911	433	95.1	13	2.9	1	0.2	8	1.8	455
New York....... ..	1908	1978	93.5	105	5.0	8	0.4	25	1.1	2116
	1909	1959	92.3	133	6.3	12	0.5	19	0.9	2123
	1910	1972	93.0	126	5.9	10	0.5	12	0.6	2120
	1911	2012	93.0	126	5.9	11	0.5	13	0.6	2162
Pennsylvania......	1908	1920	91.3	155	7.4	4	0.2	25	1.1	2104
	1909	2005	92.9	130	6.0	11	0.5	13	0.6	2159
	1910	1828	91.9	145	7.3	7	0.3	10	0.5	1990
	1911	1639	91.1	145	8.1	5	0.2	10	0.6	1799
Rhode Island......	1908	92	92.9	5	5.1	0	0.	2	2.0	99
	1909	94	94.9	3	3.1	2	2.0	0	0.	99
	1910	95	94.0	5	5.0	0	0.	1	1.0	101
	1911	99	95.1	4	3.9	1	1.0	0	0.	105
Vermont...	1908	93	87.8	10	9.4	3	2.8	0	0.	106
	1909	95	89.6	7	6.6	4	3.8	0	0.	106
	1910	93	91.1	7	6.9	2	2.0	0	0.	102
	1911	93	96.9	2	2.1	1	1.0	0	0.	96
Virginia... . .	1908	448	86.0	14	2.7	0	0.	59	11.3	521
	1909	410	85.1	17	3.5	3	0.6	52	10.8	482
	1910	400	86.0	21	4.5	3	0.7	41	8.8	465
	1911	396	89.0	15	3.4	2	0.4	32	7.2	445
West Virginia.....	1908	190	65.1	89	30.5	0	0.	13	4.4	292
	1909	168	62.0	89	32.8	0	0.	14	5.2	271
	1910	149	56.0	105	39.5	2	0.7	10	3.8	266
	1911	146	66.4	66	30.0	4	1.8	4	1.8	220
Totals..........	1908	6936	92.0	436	5.8	26	0.3	145	1.9	7543
	1909	6944	92.3	420	5.6	45	0.5	118	1.6	7527
	1910	6707	91.8	466	6.4	32	0.5	99	1.3	7304
	1911	6497	92.3	415	6.0	43	0.5	80	1.2	7035

B. STUDENTS FROM THE MIDDLE STATES

		Attending Medical Schools in the								
		East.		Middle States.		West.		South.		
Middle States.	Year.	Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	Totals.
Illinois............	1908	55	3.1	1651	94.4	14	0.8	29	1.7	1749
	1909	54	2.8	1832	95.4	14	0.8	20	1.0	1920
	1910	41	2.3	1884	96.2	14	0.6	17	0.9	1959
	1911	38	2.4	1535	96.1	17	1.1	8	0.4	1598
Indiana...........	1908	23	3.2	680	94.6	9	1.2	7	1.0	719
	1909	20	4.8	565	92.6	9	1.5	7	1.1	610
	1910	28	4.9	530	92.8	5	0.9	8	1.4	571
	1911	28	5.6	455	90.5	15	3.0	5	0.9	503
Iowa..	1908	26	3.6	676	94.4	8	1.1	6	0.9	716
	1909	35	4.8	658	91.1	27	3.7	2	0.4	722
	1910	30	4.7	582	91.5	22	3.5	2	0.3	636
	1911	28	5.5	429	87.9	31	6.4	1	0.2	489
Kansas..	1908	26	5.6	418	89.9	3	0.6	18	3.9	465
	1909	20	5.2	349	90.2	9	2.3	9	2.3	387
	1910	26	6.3	362	87.9	12	2.9	12	2.9	412
	1911	16	4.7	300	88.0	13	3.8	12	3.5	341
Kentucky..........	1908	33	5.2	541	85.2	0	0.	61	9.6	635
	1909	28	5.6	401	80.7	6	1.2	62	12.5	497
	1910	29	6.8	331	77.3	2	0.5	66	15.4	428
	1911	36	10.0	259	72.1	2	1.7	62	17.2	359
Michigan..........	1908	24	4.9	457	92.7	4	0.8	8	1.6	493
	1909	11	2.2	470	95.7	6	1.4	4	0.7	491
	1910	11	2.5	429	95.6	6	1.3	3	0.6	449
	1911	9	2.2	388	95.3	7	1.7	3	0.8	407
Minnesota.........	1908	21	5.7	350	94.3	0	0.	0	0.	371
	1909	25	7.2	313	90.2	7	2.0	2	0.6	347
	1910	16	4.7	313	92.6	6	1.8	3	0.9	338
	1911	12	3.6	291	93.1	9	2.9	1	0.4	313
Missouri..........	1908	26	2.8	851	92.6	9	1.0	33	3.6	919
	1909	27	3.4	743	91.4	12	1.3	31	3.9	813
	1910	28	3.5	734	91.0	12	1.4	33	4.1	807
	1911	21	3.3	550	88.7	12	2.0	37	6.0	620
Nebraska..........	1908	12	3.6	317	95.5	2	0.6	1	0.3	332
	1909	8	2.3	329	95.1	9	2.6	0	0.	346
	1910	8	2.7	285	94.6	8	2.7	0	0.	301
	1911	10	3.7	250	92.2	11	4.1	0	0.	271
North Dakota.......	1908	6	7.9	70	92.1	0	0.	0	0.	76
	1909	8	10.4	68	88.3	1	1.3	0	0.	77
	1910	7	7.2	89	91.8	1	1.0	0	0.	97
	1911	8	8.3	88	91.7	0	0.	0	0.	96
Ohio..............	1908	140	15.3	756	82.9	5	0.6	11	1.2	912
	1909	116	12.5	792	85.3	13	1.4	8	0.8	929
	1910	99	11.0	780	86.5	14	1.6	9	0.9	902
	1911	101	11.6	740	86.2	9	1.6	9	1.6	859
South Dakota......	1908	3	4.2	66	93.0	0	0.	2	2.8	71
	1909	1	1.1	86	98.9	0	0.	0	0.	87
	1910	4	4.7	80	94.1	1	1.2	0	0.	85
	1911	6	6.9	78	89.7	3	3.4	0	0.	87
Wisconsin..........	1908	22	4.6	450	94.2	2	0.4	4	0.8	478
	1909	18	4.2	407	94.7	5	1.1	0	0.	430
	1910	16	3.1	498	96.0	5	0.9	0	0.	519
	1911	21	4.5	427	93.0	11	2.5	0	0.	459
Totals..........	1908	417	5.3	7283	91.8	56	0.6	180	2.3	7936
	1909	380	5.0	7013	91.6	118	1.5	145	1.9	7656
	1910	617	8.2	6626	88.3	108	1.5	153	2.0	7504
	1911	334	5.2	5790	90.5	140	2.2	138	2.1	6402

This table gives an interesting study of the migration of medical students. It shows that of the 19,148 medical students coming from the various states and attending the medical schools of the United States during the session of 1910-11, 2,330 went to other parts of the country to study medicine. Groups A, B, C and D show where the students from each section go to study medicine. Group A shows where the students coming from the eastern section of the country went to study medicine. Section B shows the same for the students from the middle section of the country. Table C, students from the western section of the country, and Table D, students from the southern section. For example, Group A shows that 7,035 medical students came from the eastern section during 1910-11 and of that number 6,497 entered colleges of the east, 415 attended colleges of the middle states, 43 attended western colleges and 80 attended southern colleges. Figures for the last four college sessions are given and this permits an interesting study by states. For example, Kentucky furnished 635 students in 1908 but only 359 in 1911; nevertheless, where only 9.6 per cent. attended southern colleges in 1907-08, 17.2 per cent. attended southern colleges in 1910-11. Was this due to the fact that the south has better medical colleges now than in 1908 or to the fact that a large number of colleges in the middle section have adopted higher standards? These tables show also the total number of students coming from each state for each of the last four years as well as from each section. For example, a study of Group A shows that for each of the four years New York furnished over 2,100 medical students and about 93 per cent. of those students attended the colleges of their home section. Group D of Table 3 shows that the southern section furnished 5,467 students for the session of 1907-08 but only 4,848 for the session of 1910-11. This section also shows a larger percentage of students going to the eastern schools in 1911 than went to those schools in 1908; it also shows that a smaller portion of students attended the colleges of the middle states during 1911 than attended those schools in 1908.

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Endowments, New Medical Buildings and Hospitals

Alabama.—The state legislature made an appropriation of $25,000 per year for the running expense of the Medical Department of the University of Alabama, Mobile.

Connecticut.—Yale Medical School received a donation of $30,000 from Francis E. Loomis of the class of 1864. Of this

(Continued on opposite page)

TABLE 8.—WHERE STUDENTS STUDY MEDICINE—(Concluded)

C. STUDENTS FROM THE WESTERN STATES

Western States.	Year.	Attending Medical Schools in the								Totals.
		East.		Middle States.		West.		South.		
		Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	
Arizona	1908	1	6.7	4	26.7	2	13.3	8	53.3	15
	1909	1	8.3	3	25.0	2	16.7	6	50.0	12
	1910	2	40.0	1	20.0	0	0.	2	40.0	5
	1911	3	30.0	3	30.0	2	20.0	2	20.0	10
California	1908	55	13.5	39	9.6	306	75.0	8	1.9	408
	1909	52	18.4	33	11.7	192	68.1	5	1.8	282
	1910	48	13.4	26	7.2	277	77.2	8	2.2	359
	1911	53	15.1	30	7.8	266	74.1	10	3.0	359
Colorado	1908	9	5.8	28	17.9	117	75.0	2	1.3	156
	1909	10	6.7	21	14.0	116	77.3	3	2.0	150
	1910	13	8.3	29	18.5	112	71.3	3	1.9	157
	1911	14	9.8	31	21.7	93	65.0	5	3.5	143
Idaho	1908	2	8.3	17	70.9	5	20.8	0	0.	24
	1909	1	3.8	16	61.6	8	30.8	1	3.8	26
	1910	1	4.8	11	52.2	9	42.8	0	0.	21
	1911	5	20.0	14	56.0	6	24.0	0	0.	25
Montana	1908	8	18.6	32	74.4	1	2.3	2	4.7	43
	1909	6	19.4	21	67.7	4	12.9	0	0.	31
	1910	8	21.6	25	67.6	4	10.8	0	0.	37
	1911	8	29.6	18	66.7	1	3.7	0	0.	27
Nevada	1908	1	12.5	3	37.5	3	37.5	1	12.5	8
	1909	1	12.5	3	37.5	4	50.0	0	0.	8
	1910	0	0.	5	83.3	1	16.7	0	0.	6
	1911	0	0.	1	25.0	3	75.0	0	0.	4
New Mexico	1908	2	18.2	3	27.3	2	18.2	4	36.3	11
	1909	3	37.5	4	50.0	1	12.5	0	0.	8
	1910	3	27.3	5	45.5	1	9.1	2	18.1	11
	1911	2	18.2	9	81.8	0	0.	0	0.	11
Oregon	1908	22	16.8	15	11.5	92	70.2	2	1.5	131
	1909	19	16.4	19	16.4	77	66.3	1	0.9	116
	1910	15	11.5	25	19.2	90	69.3	0	0.	130
	1911	19	17.1	21	18.9	70	63.1	1	0.9	111
Utah	1908	35	35.4	34	34.3	29	29.3	1	1.0	99
	1909	22	29.3	32	42.7	20	26.7	1	1.3	75
	1910	25	28.4	35	39.8	26	29.6	2	2.2	88
	1911	18	23.4	40	51.9	19	24.7	0	0.	77
Washington	1908	26	25.2	47	45.7	26	25.2	4	3.9	103
	1909	29	32.6	36	40.4	21	23.6	3	3.4	89
	1910	26	29.3	40	44.9	21	23.6	2	2.2	89
	1911	30	34.1	43	48.9	14	15.9	1	1.1	88
Wyoming	1908	1	16.7	4	66.7	1	16.7	0	0.	6
	1909	3	21.4	5	35.7	5	35.7	1	7.2	14
	1910	3	27.3	5	45.4	3	27.3	0	0.	11
	1911	4	36.3	6	54.5	1	9.2	0	0.	11
Totals	1908	162	16.1	226	22.5	584	58.2	32	3.2	1004
	1909	147	18.1	193	23.8	450	55.5	21	2.6	811
	1910	144	15.8	207	22.6	544	59.5	19	2.1	914
	1911	136	18.1	216	24.8	475	55.0	19	2.1	866

(Continued from opposite page)

sum $20,000 is for medical research and $10,000 is to go toward the endowment of the university clinic.

Georgia.—The Atlanta College of Physicians and Surgeons received a gift of $5,000 from Dr. W. S. Elkin, which was expended in equipping the departments of embryology, histology and physiology.

—The Medical College of Georgia received $46,000 from the citizens of Augusta, for a new college building.

Illinois.—The legislature appropriated $120,000 for the College of Medicine of the University of Illinois (The College of Physicians and Surgeons, Chicago). This is $60,000 per year for two years.

—The sum of $65,000 has been donated by Mrs. Anna W. Phelps to provide a new site for the Hahnemann Hospital, Chicago. In his will the late Erskine M. Phelps had bequeathed $30,000 for a new hospital building and $75,000 for a nurses home. It is stated that the Hahnemann Medical College intends to sell its present college building and will erect another building on the new site.

—A gift of $250,000 was received by Northwestern University Medical School, Chicago, from Mr. James A. Patten, to endow and maintain a chair of medical research.

D. STUDENTS FROM THE SOUTHERN STATES

Southern States.	Year.	Attending Medical Schools in the								Totals.
		East.		Middle States.		West.		South.		
		Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	Students.	Percentage.	
Alabama	1908	36	5.3	24	3.5	0	0.	633	91.2	683
	1909	116	12.5	792	85.3	13	1.4	8	0.8	929
	1910	33	5.2	27	4.3	1	0.2	572	90.3	633
	1911	32	5.8	17	2.9	1	0.2	499	91.1	549
Arkansas	1908	20	4.8	60	14.3	0	0.	339	80.9	419
	1909	20	5.2	47	12.2	0	0.	317	82.6	384
	1910	18	4.5	56	14.3	1	0.5	317	80.7	392
	1911	17	5.5	42	13.7	1	0.5	247	80.5	307
Florida	1908	19	14.4	9	6.8	0	0.	104	78.8	132
	1909	27	17.2	9	5.7	0	0.	121	77.1	157
	1910	22	15.4	12	8.4	1	0.7	108	75.5	143
	1911	31	18.8	8	4.8	1	0.6	127	75.8	167
Georgia	1908	51	7.8	17	2.6	1	0.1	586	89.5	655
	1909	50	7.6	15	2.2	1	0.2	593	90.0	659
	1910	45	6.4	13	1.9	0	0.	644	91.7	702
	1911	51	7.3	20	2.8	0	0.	639	89.9	710
Louisiana	1908	19	3.9	30	6.2	0	0.	438	89.9	487
	1909	20	4.4	31	6.8	1	0.2	404	88.6	456
	1910	14	3.7	23	6.1	3	0.8	336	89.4	376
	1911	17	5.9	13	3.9	1	0.3	298	90.6	329
Mississippi	1908	16	2.7	39	6.5	1	0.4	547	90.4	603
	1909	18	3.0	40	6.7	1	0.2	534	90.1	593
	1910	17	3.0	37	6.6	0	0.	506	90.4	560
	1911	17	3.2	23	4.7	0	0.	455	92.1	495
North Carolina	1908	158	31.5	13	2.5	2	0.4	329	65.6	[illegible]
	1909	170	33.1	11	2.1	1	0.2	332	64.6	[illegible]
	1910	174	35.3	11	2.2	0	0.	308	62.5	493
	1911	201	41.0	9	1.9	0	0.	277	[illegible]	487
Oklahoma	1908	8	5.3	41	27.0	1	0.7	[illegible]	67.0	152
	1909	8	4.3	55	29.6	0	0.	123	66.1	186
	1910	6	3.1	52	26.5	0	0.	134	68.4	192
	1911	8	4.7	40	23.4	1	0.6	122	71.3	171
South Carolina	1908	73	21.3	9	2.6	0	0.	261	76.1	343
	1909	66	16.8	[illegible]	3.0	1	0.3	314	79.9	393
	1910	75	[illegible]	8	1.9	0	0.	330	79.9	413
	1911	72	[illegible]	6	1.6	1	0.2	300	79.4	379
Tennessee	1908	19	3.1	45	7.3	1	0.1	552	89.5	617
	1909	21	3.9	38	7.1	0	0.	478	89.0	537
	1910	26	4.5	43	7.6	0	0.	500	87.9	569
	1911	25	4.5	36	6.5	3	0.6	486	88.4	550
Texas	1908	41	4.7	113	12.9	3	0.4	717	82.0	874
	1909	39	5.2	76	10.1	7	0.9	629	83.8	751
	1910	45	6.3	70	9.7	6	0.8	598	83.2	719
	1911	36	5.0	53	7.5	8	1.2	607	86.3	704
Totals	1908	460	8.4	400	7.3	9	0.1	4598	84.2	5467
	1909	473	8.9	358	6.7	12	0.3	4474	84.1	5317
	1910	475	9.1	352	6.8	12	0.3	4353	83.8	5192
	1911	507	10.4	267	5.5	17	0.3	4057	83.8	4848
Average 1908, 1909 1910 and 1911	A	6771	92.1	434	5.9	37	0.5	110	1.5	7352
	B	437	5.9	6678	90.6	105	1.4	154	2.1	7374
	C	152	16.9	210	23.4	513	57.1	23	2.6	898
	D	479	9.2	344	6.6	12	0.2	4370	84.0	5205
Where migrating students went.	1908	1039	40.8	1062	41.7	91	3.5	357	14.0	2549
	1909	1000	41.2	971	40.0	175	7.1	284	11.7	2430
	1910	1092	42.7	1020	39.9	139	5.5	304	11.9	2555
	1911	968	42.6	895	38.6	200	8.6	237	10.2	2330

Indiana.—Property valued at $200,000 was donated by Dr. and Mrs. R. W. Long of Indianapolis toward the establishing of a state hospital under the direction of the Indiana University School of Medicine. The school also received a bonus of $25,000 annually through the last legislature.

Iowa.—One new building at a cost of $30,000 has been completed by the Drake University College of Medicine, Des Moines, and a second building which will cost a like sum is now in course of construction.

—An addition has been made to the University Hospital of the State University of Iowa College of Medicine, at a cost of $100,000.

Maryland.—The University of Maryland School of Medicine has received pledges amounting to $7,250 toward an endowment for the department of pathology.

(Continued on next page)

Massachusetts.—Harvard Medical School was left $22,000 by the will of the late Samuel Hubbard Scudder, which will revert to the school on the death of the testator's sister, Mrs. Mary E. Blatchford. Also $4,000 in cash and all his medical books and scientific apparatus were received through the will of the late Dr. Henry P. Bowditch.

—The medical building of the Tufts College Medical School has been enlarged at an expense of about $50,000.

Missouri.—The Robert A. Barnes Hospital is to be erected on the campus of the Washington University School of Medicine on King's highway, St. Louis, at a cost of $1,500,000. It will consist of a group of ten buildings.

—A new hospital for the clinical department of the St. Louis University School of Medicine has been erected by the Sisters of Mercy at a cost of $350,000.

New York.—The Medical Department of the University of Buffalo has erected an addition to its college building at a cost of $20,000.

—An additional donation of $3,820,000 has been given by John D. Rockefeller for the Rockefeller Institute of Medical Research. This brings his total gifts for the institute to $8,240,000.

—Fordham University School of Medicine is erecting a new college building, the approximate cost of which, when completed, will be $100,000.

—A gift of $1,300,000 has been pledged for the perfection of the affiliation of the Presbyterian Hospital and the medical school of Columbia University. The gift was made through Edward H. Harkness and is believed to have come from members of his family. He himself contributes $300,000 for the erection of a surgical pavilion to be equipped with modern appliances and also a complete laboratory for advanced research work. More recently $100,000 has been given to this hospital by the will of Miss Adele A. Dortic and a second $100,000 by the Supreme Court decision in regard to the will of Edward O. Kindberg.

—Columbia University received an anonymous gift of $10,000 annually for four years, a total of $40,000, to be used in surgical research.

—A sum of $10,000 has been pledged by the alumni of the New York Homeopathic Medical College and Hospital for the maintenance of the bacteriological laboratory at the college.

Nebraska.—The Nebraska legislature appropriated $100,000, which will be used to establish all four years of the medical course of the University of Nebraska College of Medicine on the new campus in Omaha.

North Carolina.—A new medical building has been erected on the campus of the University of North Carolina at an approximate cost of $37,000.

Ohio.—Western Reserve University has received from Mr. H. M. Hanna a gift of $250,000 toward an endowment fund for the Medical Department.

—A new addition to the laboratory building of the Starling-Ohio Medical College has been erected at a cost of $10,000.

—Ohio-Miami Medical College of the University of Cincinnati received $50,000 by the will of the late Dr. Francis Brunning as an addition to the endowment fund.

Oregon.—The legislature recently made an appropriation of $30,000 for the Medical Department of the University of Oregon.

Pennsylvania.—The University of Pennsylvania received a gift of $100,000 to be used in establishing a "Benjamin Rush Chair of Physiologic Chemistry." The chair has been established and Dr. Alonzo E. Taylor has been chosen for the place.

—A modern clinical amphitheater was erected for the Woman's Medical College of Pennsylvania at a cost of $22,500. The college also received a bequest of $3,000 by the will of the late Annie Shoemaker.

—The Hahnemann Medical College and Hospital of Pennsylvania is said to have received a gift of $100,000 to establish a chair in materia medica.

South Carolina.—A new building is being erected by the Medical College of South Carolina which will cost approximately $75,000.

Tennessee.—A special donation of $150,000 was made by Mr. W. K. Vanderbilt to purchase the sixteen-acre campus of the Peabody Normal College for the Medical and Dental Departments of Vanderbilt University. Vanderbilt University has now assumed all responsibility financially and otherwise for its medical department.

—Meharry Medical College, Nashville, has been promised $10,000 by Mr. Andrew Carnegie for the completion of Hubbard Hospital, on condition that another $10,000 is raised from other sources.

Virginia.—The University College of Medicine, Richmond, is erecting a new college building to replace the one destroyed by fire in January, 1910. The approximate cost will be $135,000.

Wisconsin.—An anonymous donor contributed $5,000 to the maintenance fund of the Wisconsin College of Physicians and Surgeons, Milwaukee.

Philippine Islands.—The new Philippine General Hospital at Manila has been completed. It is located on the same campus as the Philippine Medical School, now the College of Medicine and Surgery of the University of the Philippines.

Total Donations for the Year.—Although there were doubtless other instances of gifts or new buildings not reported to us, the above items show that at least $855,500 were spent during the year for new medical buildings; $459,000 were received in straight donations; $215,000 were given for the endowment of special chairs; $266,130 for the endowment of the medical schools proper and $150,000 for a new campus. Therefore, for purposes directly concerned with medical education a total of $1,945,630 was provided for. Besides this sum, $3,755,000 were given to establish teaching hospitals and $310,000 for medical research in medical schools, increasing the total to $6,010,630. This does not include an additional sum of $3,820,000 given by Mr. Rockefeller for medical research at the Rockefeller Institute.

Other College Notes

Adopted Hospital Year.—The University of Minnesota College of Medicine and Surgery has adopted the requirement that beginning this fall all matriculants must have attended a five-year course before graduation and that the fifth or last year must have been spent as an intern in a hospital satisfactory to the college.

Adopt Concentration Method.—The concentration method of teaching medicine, modifications of the method employed at the Harvard Medical School, have been adopted by Syracuse University College of Medicine, Syracuse, N. Y.; Drake University College of Medicine, Des Moines, Iowa, and the State University of Iowa College of Medicine, Iowa City.

To Save Old Medical Building.—The alumni of the Department of Medicine and Surgery of the University of Michigan are endeavoring to raise $50,000 to save the old medical building as a memorial to the medical department. This amount will be sufficient to reconstruct the interior without changing the outside appearance.

Special Chair in Preventive Medicine.—A special chair in preventive medicine has been established at the Washington University Medical School and Dr. David L. Edsall, formerly professor of medicine in the University of Pennsylvania has been selected to occupy the place.

Diploma Mill Again Closed.—The Gate City Medical College formerly located at Texarkana and which was reported to have been closed in 1907, reopened in Dallas in 1910. Circulars were sent out offering to give courses by mail and several of these were sent by the recipients to the office of the American Medical Association.[1] Some decoy correspondence was carried on with the dean, Dr. J. W. Decker. This correspondence and several of the circulars were forwarded to the Texas State Medical Association, who placed the matter in the hands of their attorney, Mr. James N. Wilkerson. Mr. Wilkerson succeeded in purchasing outright two diplomas from Decker for $50 on December 29, 1910. Decker was arrested and a bill of indictment was found against him by the Federal Grand Jury for fraudulent use of the mails. In May, 1911, Decker was convicted and sentenced to fifteen months of hard labor at Fort Leavenworth, Kansas. At the trial it was shown that the defunct College of Physicians and Surgeons had been consolidated with this "college" and that the entire equipment of the consolidated institution consisted of a stove, a table, two chairs, a manikin, a blackboard and a defective skeleton.

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[1] THE JOURNAL A. M. A., March 18, 1911, p. 839.

Cooperative Course in Public Health.—The board of directors of the University of Cincinnati has arranged to cooperate with the health department of the city of Cincinnati to provide for the medical students a training in public health work. Each of the two upper classes will be divided into four groups and each group will be assigned to the board of health where the students will do chemical and bacteriological work (such as the examination of milk and water, the making of tests for typhoid fever, tuberculosis, diphtheria, etc.) They will also do sanitary inspection and fumigation; trace the sources of infections; make food, dairy, bakery, barber-shop and school inspections; practice preventive inoculation and vaccination; study the methods of disposal of sewage and of the dead and serve in the city dispensaries. Students will also participate in the work of the Antituberculosis League, and in the office work of the board of health, studying methods of making reports, compiling statistics and keeping records. Two groups of students, one from each class, will be assigned to the board of health at one time and these two groups will serve for one month after which two other groups will be assigned until all students have taken the work. This work is designed to send out physicians who will be better acquainted with public health problems and better trained to take up the work of disease prevention.

Public Health Course in Wisconsin.—In conjunction with the State Department of Public Health, the University of Wisconsin has arranged for a special course for public health officers to begin this fall. The course will extend over one year and will lead to a Diploma of Public Health. It will be open to those who have received a degree in medicine or in medical or sanitary science and desire to fit themselves especially for public health work. The subjects offered are as follows:

First Semester.—1. Bacteriology for Health Officers. 2. Physi-
the chemistry of food, air, water,
4. Medical Zoology.
Bacteriology, Pathology and Hygiene
for Health Officers. To include bacteriology of air, water, food and soils, epidemiology, diseases of animals transferable to man, occupational diseases, etc. 2. Microscopical Examination of Drugs and Foods. 3. Public Health Administration and Vital Statistics. 4. Practical Field Work. 5. Hydrology.

In addition to the course above outlined, it is planned to have a conference of public health officers of the villages and cities of Wisconsin at the state university once in two years. The recent legislature passed a bill authorizing the secretary of the State Board of Health to call a conference of this kind and authorizing the expenses of such officers who attend such a conference to be paid by the village or city from which they come.

FOREIGN COLLEGE NOTES

Adelaide, Australia.—The medical school in the University of Adelaide, Australia, was founded in 1883, but the complete curriculum was not offered until 1886. The course covers five years of nine months each in addition to preliminary work, including courses in physics, chemistry and elementary biology. The faculty numbers 17. The total enrolment of medical students in 1910 was 73; graduates, 8. The amount received from medical students' fees in 1910 was 2,172 pounds (about $10,860), while the amount expended for medical teaching was 3,072 pounds (or about $15,360). The school has endowments amounting to 36,000 pounds (about $180,000).

Canton, China.—The University Medical School of Canton, China, was organized in 1908 by the Christian Association of the University of Pennsylvania as a modern missionary enterprise. A dispensary was opened. In the first year, 3,839 patients were treated, and in the second year 4,203. A hospital to cost $16,500 is now being erected. The first class consisting of four students was enrolled in February, 1910. That the standards of its work may be guaranteed it is desired to bring the Medical School and Hospital into some direct official relationship with the University of Pennsylvania. It is now affiliated with the Canton Christian College, an institution incorporated under the regents of the State of New York, with assets of $180,000, having a faculty of twelve American professors, assisted by fourteen Chinese instructors. The campus of the Canton Christian College consists of forty-eight acres, adjoining the eight-acre tract belonging to the University Medical School.

—Reports have also been received from the South China Medical College at Canton, which during 1910 enrolled thirty-six students. Eleven physicians are engaged in teaching. A four-year course of over 900 hours each year is required. Before completing his course the student is required to do six months' clinical work in the hospital wards. In the hospital 1,928 patients were cared for during 1910, and in the out-patient department, 17,962. There were 1,747 surgical operations.

Siena, Italy.—The Royal University of Siena, Italy, gives a medical course covering six years, including preliminary courses in physics, chemistry and biology. The medical faculty numbers twenty. The annual session begins early in November and extends to the last week in July of each year. During 1909-10 the enrolment of medical students was forty-nine, including nine candidates for graduation.

Halifax, Nova Scotia.—Dalhousie University has taken over the Halifax Medical College and hereafter assumes full control, financially and otherwise. The college is to be completely reorganized and the name has been changed to the Dalhousie Medical College, Medical Faculty of Dalhousie University.

Zurich, Switzerland.—The total enrolment of medical students at the University of Zurich during last year was 393, and of this number 124 were women. The faculty is made up of eighteen professors and twenty-seven docents, a total of forty-five. The summer semester begins in April and the winter semester in October of each year. The course covers five years, including preliminary courses in physics, chemistry and biology.

Beirut, Syria.—In France, 100,000 francs, or more than $20,000, have been subscribed for the enlargement of the Beirut Medical School at Beirut, Syria. The number of students enrolled is reported at 250, and the new building will increase the capacity to 400. A new teaching hospital is also planned.

—The School of Medicine of the Syrian Protestant College of Beirut, Syria, was organized in 1867, the first class graduating in 1871. The course covers four years of thirty-five weeks each. Its faculty numbers fourteen. The total enrollment for 1909-10 was 138; graduates, eighteen. Johanniter Hospital is under the care of the medical school. It has eighty-three beds and over 800 patients were admitted during the year. In the policlinic, the out-patient department, over 13,000 cases were treated during the year. The school possesses a medical library of over 1,800 volumes and several prominent medical journals, American, English and French.

Montpellier, France.—The medical course at the University of Montpellier extends over four years. For admission a diploma from a seven-year gymnasium or lyceum is required and in addition to this the student must complete a year in the college of science devoted to physics, chemistry and biology. During the session of 1909-10, 729 medical students were enrolled and 133 were granted degrees. Of this number 120 received state diplomas and thirteen the diploma of the university. Of the 729 students, 650 were in regular attendance, the other seventy-nine being absent on military duty or for other cause.

Montreal, Canada.—The Medical Faculty of McGill University is now occupying the new buildings erected during 1909 and 1910 at a cost of 450,000, to replace those destroyed by fire in April, 1907. The money was provided by Lord Strathcona, who in June, 1911, gave an additional $100,000 for equipment.

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[*For other information see second page following reading matter*]

SATURDAY, AUGUST 19, 1911

MEDICAL EDUCATION IN THE UNITED STATES

The tabulated statistics herewith presented (pages 642 to 651) are for the year ending June 30, 1911, and are based on signed reports received directly from the medical colleges, or from other reliable sources. We wish here to acknowledge the courtesy and cooperation of the officials of the medical colleges which have made the compilation of these complete statistics possible.

STATISTICS OF COLLEGES

On pages 642 to 644 is Table 1, which gives all the colleges in session during 1910-11, the population of the city in which each college is located, the number of students, men and women, registered during the year, the number of 1911 graduates, men and women, the number of graduates holding collegiate degrees, the number of teachers for each college, the number of weeks of actual work in the college year, the total fees for each year, the executive officer of the college and the dates of beginning and ending of the next session. The figures in heavy-faced type show the totals by states. Beginning on page 630 are given essential facts concerning all medical colleges, arranged by states.

NUMBER OF MEDICAL STUDENTS

The total number of medical students (matriculants) in the United States for the year ending June 30, 1911, excluding special students, was 19,786, a decrease of 1,740 below 1910, a decrease of 2,359 below 1909, a decrease of 2,816 below 1908, and a decrease of 8,356 below 1904, when the highest number of students was enrolled. In fact, it is the lowest number since The Journal began compiling these statistics in 1900. Of the total number of students, 18,414 were in attendance at the regular colleges, 890 at the homeopathic, 433 at the eclectic, and 49 at the physiomedical colleges. The attendance at the regular colleges shows a decrease of 1,722 below that of last year, of 2,140 below 1909, and 2,522 below 1908. In the homeopathic colleges there was an increase of 23 above the attendance of 1910, but a decrease of 9 below the total for 1909. The eclectic colleges show a decrease of 22 below 1910, but an increase of 20 above 1909. The physiomedical colleges had the same number as last year, 49 students, as compared with 52 in 1909, and 90 in 1908.

TABLE 4.—Medical College Attendance

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med.	Nondescript.	Total.
1880	9,776	1,220	830	...	...	11,826
1890	13,521	1,164	719	...	...	15,404
1900	22,710	1,909	522	...	...	25,171
1901	23,816	1,683	661	80	144	26,417
1902	24,878	1,617	765	91	150	27,501
1903	24,930	1,408	848	149	190	27,615
1904	23,662	1,309	1,014	123	234	28,142
1905	24,119	1,104	578	114	232	26,147
1906	23,116	1,085	644	110	249	25,204
1907	22,303	1,039	545	97	292	24,276
1908	20,936	891	479	90	206	22,602
1909	20,554	899	413	52	227	22,145
1910	20,136	867	455	49	19	21,526
1911	18,414	890	433	49	...	19,786

GRADUATES

The total number of graduates for the year ending June 30, 1911, was 4,273, a decrease of 167 below 1910, of 242 below 1909, of 468 below 1908 and of 707 below 1907. It is the lowest number graduating since The Journal began compiling these statistics, and is 181 less than the number graduated in 1890. The total this year is 1,474 less than in 1904, when there were 5,747 graduates. The percentage of graduates to matriculants was 21.6 this year, as compared with 20.7 in 1910, 20.1 in 1909 and 21.0 in 1908. The number of graduates from the regular colleges was 4,006, or 107 less than in 1910, 157 less than in 1909, and 364 less than in 1908. From the homeopathic colleges there were 152 graduates, or 31 less than in 1910, 57 less than in 1909, and 63 less than in 1908. The eclectic colleges graduated 110, 4 less than last year, but 26 more than in 1909. The physiomedical colleges had 5 graduates this year, as compared with 16 last year and 15 in 1909.

TABLE 5.—Medical College Graduates

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med.	Nondescript.	Total.
1880	2,673	380	188	..	..	3,241
1890	3,853	380	221	..	..	4,454
1900	4,715	413	86	..	..	5,214
1901	4,879	387	148	18	12	5,444
1902*	4,508	336	138	16	11	5,009
1903	5,088	420	149	24	17	5,698
1904	5,190	371	146	20	20	5,747
1905	5,126	276	153	22	23	5,600
1906	4,841	286	186	22	29	5,364
1907	4,591	225	121	11	32	4,980
1908	4,370	215	116	12	28	4,741
1909*	4,163	209	84	15	44	4,515
1910*	4,113	183	114	16	14	4,440
1911	4,006	152	110	5	..	4,273

* The figures for these years include some corrections made since the last Educational Number was published.

Of the 4,273 medical graduates, 705, or 16.5 per cent., were reported to hold also degrees in arts or science, as compared with 15.3 per cent. last year and 15.6 per cent. in 1909. As will be noted by referring to Table 10, of the 705 graduates holding baccalaureate degrees, 102, the largest number, came from Illinois colleges, followed by 94 from Maryland, 91 from Massachusetts, 81 from Pennsylvania and 76 from New York colleges. It is expected that in future the percentage of college graduates entering medicine will increase since more medical schools are requiring college work for admission.

WOMEN IN MEDICINE

During the past year there were 680 women studying medicine, a decrease of 227 below 1910, and a decrease of 241 below 1909. The percentage of all medical students was 3.4 as compared with 4.2 last year. There were 159 women graduates this year, or 3.7 per cent. of all graduates. In 1910 there were 907 women students and 157 graduates, while in 1909 there were 921 women students and 162 graduates. Of all the women matriculants, 134 (17.7 per cent.) were in attendance at the two medical colleges for women, as compared with 155 (17.1 per cent.) in 1910, 169 (18.4 per cent.) in 1909 and 186 (22.3 per cent.) in 1908. The remaining 546 (80.3 per cent.) were matriculated in coeducational colleges. From the two women's colleges, there were 36, or 22.6 per cent., of all women graduates, as compared with 41 (26.1 per cent.) in 1910 and 33 (20.3 per cent.) in 1909. There were 123, or 80.3 per cent., of all women graduates who secured their degrees from coeducational colleges.

TABLE 6.—WOMEN IN MEDICINE

Year.	Total women students.	Percentage of all graduates, both sexes.	Total women graduates.	Percentage of Grads., both sexes.	Women's colleges.	Students.	Percentage of all women students.	Graduates.	Percentage of all woman graduates.	Co-ed. schools.	Students.	Percentage of all women students.	Graduates.	Percentage of all woman graduates.
1904	1,129	4.3	244	4.0	3	183	16.2	56	23.0	97	946	83.8	198	77.0
1905	1,073	4.1	219	4.0	3	221	20.6	54	24.5	96	852	79.4	165	75.5
1906	895	3.5	233	4.3	3	189	21.0	33	14.1	90	706	79.0	200	85.9
1907	928	3.8	211	4.2	3	210	22.6	39	18.5	86	718	77.4	172	81.5
1908	835	3.7	185	3.9	3	186	22.3	46	24.9	88	649	77.7	139	75.1
1909	921	4.2	162	3.7	3	169	18.4	33	20.3	91	752	81.6	129	79.7
1910	907	4.2	157	3.5	3	155	17.1	41	26.1	82	752	82.9	116	73.9
1911	680	3.4	159	3.7	2	134	19.7	36	22.6	74	546	80.3	123	77.4

NUMBER OF COLLEGES

Since June 30, 1910, 13 colleges (mentioned on page 649) have either suspended or have merged into others, leaving 120 medical colleges still existing. The regular colleges number 101, a decrease of 10 since last year. The homeopathic colleges number 12, a decrease of 1 since last year. Of the eclectic colleges the number is 7, the same as last year. Among the 13 colleges which closed during the year, were included the last of the physiomedical colleges, and the last of the unclassifiable colleges.

TABLE 7.—MEDICAL COLLEGES

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med.	Nondescript.	Total.
1880..........	72	12	6	..	..	90
1890..........	93	14	6	..	..	116
1900..........	121	22	8	..	..	151
1901..........	124	21	10	2	2	159
1902..........	121	20	10	3	1	155
1903..........	121	19	10	3	1	154
1904..........	133	19	10	3	1	166
1905..........	129	18	9	3	1	160
1906..........	130	18	9	3	1	161
1907..........	131	17	8	3	2	161
1908..........	123	16	8	2	3	152
1909..........	117	14	8	2	3	144
1910..........	111	13	7	1	1	133
1911..........	101	12	7	..	..	120

During the past seven years, 64 medical colleges have ceased to exist, either through merger or otherwise. During the same time, however, 18 new colleges were organized, leaving a net decrease of 46. While the total number of colleges is smaller, the percentage of higher-grade, stronger medical colleges, has been considerably increased.

LENGTH OF TERMS

The length of term of each college fluctuates somewhat from year to year, but on the whole, during the last eleven years there has been a decided lengthening of college terms. This has reference to the weeks of actual work, exclusive of holidays. There were no colleges this year which reported sessions shorter than twenty-seven weeks, whereas in 1901 there were 58. There were only 6 colleges having sessions of twenty-seven or twenty-eight weeks, or 2 less than last year, and 40 less than in 1903. There are 16 colleges claiming courses of twenty-nine or thirty weeks of actual work, and 37, the largest number, claim courses of thirty-one or thirty-two weeks. Of the 120 colleges now existing, 97, or over 80 per cent., now claim to require from 31 to 36 weeks of actual work, exclusive of holidays, as compared with 30 per cent. in 1901, 42 per cent. in 1904, and 76 per cent. last year. The one college claiming a course longer than thirty-six weeks is a night school. It would require twelve or fourteen years of the usual night-school study, however, to obtain the equivalent of four years of thirty weeks each in one of the better day colleges.

TABLE 8.—COLLEGE TERMS

	23 to 26 weeks.		27 to 28 weeks.		29 to 30 weeks.		31 to 32 weeks.		33 to 34 weeks.		35 to 36 weeks.		Over 36 weeks.	
1901	58	36.5	42	26.4	8	5.0	26	16.4	4	2.5	18	11.3	3	1.9
1902	44	28.4	44	28.4	11	7.1	33	21.3	3	1.9	18	11.6	2	1.3
1903	33	21.4	46	29.9	15	9.7	37	24.0	2	1.3	19	12.4	2	1.3
1904	27	16.3	44	26.5	22	13.3	37	22.3	13	7.8	20	12.0	3	1.8
1905	15	9.4	35	21.8	12	7.5	44	27.5	13	8.1	38	23.8	3	1.9
1906	14	8.7	35	21.7	26	16.1	32	19.9	24	14.9	28	17.4	2	1.3
1907	6	3.7	27	16.8	26	16.1	42	26.1	29	18.0	29	18.0	2	1.3
1908	2	1.3	21	13.8	28	18.4	51	33.6	24	15.8	22	14.5	4	2.6
1909	4	2.3	17	11.6	23	16.4	51	34.9	18	12.3	30	20.5	3	2.0
1910	2	1.5	8	6.0	19	14.3	42	31.5	30	22.6	30	22.6	2	1.5
1911	..	..	6	5.0	16	13.3	37	30.8	32	26.7	28	23.4	1	0.8

TUITION AND OTHER FEES

Special attention is called in Table 1 to the total amount charged by the various colleges for tuition, matriculation, laboratory and graduation fees per annum for each student. In Table 9, the 120 colleges have been grouped according to the amount of fees charged and according to their grouping by the Council on Medical Education in Classes A, B, or C.

Thirty-five colleges charge fees of $100 or less per year, 70 colleges charge between $100 and $175, and 15 colleges charge above $175. Of the 35 colleges charging $100 or less, 18, or over 50 per cent., were listed among Class A (acceptable) colleges[1] by the Council on Medical

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[1] For complete classification see THE JOURNAL A. M. A., June 18, 1910, pp. 2061 and 2062.

TABLE 9.—College Fees

Total Fees.	Number of Colleges.			
	Class A.*	Class B.	Class C.	Total.
$ 50 or less	2	..	..	2
50 to $ 75	8	2	..	10
75 to 100	8	6	9	23
100 to 125	14	10	10	34
125 to 150	13	7	..	20
150 to 175	12	2	2	16
175 to 200	9	1	..	10
200 or above	4	..	..	5

* Based on the classification of medical colleges prepared by the Council on Medical Education.

Education, 8 were among Class B colleges, and only 9 of them are found among the Class C colleges. Among the 18 Class A colleges having these low fees are to be found the schools of medicine of the state universities of Colorado, Iowa, Mississippi, Missouri, North Dakota, South Dakota and Utah. On the other hand, 12 colleges listed by the Council in Class C charge fees of over $100 per year for each student. This clearly refutes the assertion made by some inferior colleges that they are needed for the sake of "the poor boy who wants to udy medicine." Although 25 colleges listed in Class charge fees ranging from $150 to $275 per year for each student, the actual expense for teaching that student in these colleges ranges from $300 to $600 or even more per year.

TABLE 10.—Students and Graduates, Totals by States

State.	Students.		Graduates.		Graduates with B.S. or A.B.
	Men	Women.	Men.	Women.	
Alabama	360	1	71	..	7
Arkansas	229	2	76	..	7
California	379	38	65	7	12
Colorado	142	9	36	3	14
Connecticut	83	..	20	..	6
District of Columbia	412	10	59	2	11
Georgia	819	2	168	..	8
Illinois	2,538	124	513	23	102
Indiana	179	9	50	2	4
Iowa	197	11	38	3	8
Kansas	129	8	25	3	1
Kentucky	472	..	169	..	..
Louisiana	392	1	90	..	24
Maine	67	..	13	..	5
Maryland	1,295	37	315	10	94
[illegible]	853	74	178	19	91
[illegible]	514	22	120	3	22
[illegible]	168	10	31	..	8
[illegible]	145	..	19	..	1
Missouri	971	21	225	9	21
Nebraska	281	21	56	6	6
New Hampshire	42	..	11	..	5
New York	2,231	75	405	18	76
North Carolina	319	2	46	..	4
North Dakota	34	5	..	..	..
Ohio	763	25	170	3	29
Oklahoma	57	6	13	2	..
Oregon	114	5	19	..	2
Pennsylvania	1,910	123	453	36	81
South Carolina	201	2	48	1	7
South Dakota	7	..	..	..	..
Tennessee	1,391	10	308	2	25
Texas	411	15	112	3	5
Utah	18	1	..	..	..
Vermont	186	..	40	..	2
Virginia	438	..	93	..	17
West Virginia	13	..	..	..	..
Wisconsin	345	11	60	4	..
Totals	19,106	680	4,114	159	705

DISTRIBUTION OF MEDICAL STUDENTS

Table 2, on pages 646 to 649, shows from what states the students come who were in attendance at each medical college during the session of 1910-11. The influence of the proximity of the medical school is seen in the fact that states having medical colleges contribute more students in proportion to the population than those which have no colleges, as shown by the dark zone of larger figures running diagonally down the page. A comparison of this table with the large tables based on state board examinations[2] which show the distribution of the alumni of each college, is interesting. The college which has widely distributed alumni usually has a student body from an equally large number of states.

The state furnishing the largest number of students this year was New York, with 2,162. Pennsylvania contributed 1,799 and Illinois 1,598. The next states, in the order of the number of students contributed, are: Ohio, 859; Massachusetts, 819; Texas, 704; Missouri, 620, and Indiana, 503. Four states had less than 20 each, these being New Mexico and Wyoming, each 11; Arizona 10, and Nevada 4. There were 59 students from Hawaii, Porto Rico and the Philippine Islands and 579 students from foreign countries.

In Table 3, on pages 650 and 651, the totals coming from each state for the last four years may be seen. For instance, the number coming from New York has remained nearly the same, over 2,100 for each of the four years, while the number from Pennsylvania has decreased from 2,159 in 1909 to 1,799 in 1911. Illinois, also, shows a decrease from 1,749 in 1908 to 1,598 in 1911. On the other hand, a few states, for example Rhode Island, North Dakota, South Dakota and Georgia show an increase. In the last-named state, this may be due to the continuation of low educational standards.

MIGRATION OF MEDICAL STUDENTS

Table 3 also shows the number of students of each section of the country who attended medical schools of that section, and the number who attended medical colleges of other sections. Section A gives the figures for students from the eastern states; Section B, for students from the middle states; Section C, for students from the western states, and Section D, for students from the southern states. Figures are given for the four college years 1907-8, 1908-9, 1909-10 and 1910-11. The differences in the figures for the four years show the fluctuation due to the exit of the graduating classes, to the ingress of the new freshmen and to the comparatively few who left the colleges of one section and went to those of other sections. At the bottom of Section D appear the averages of the totals for the four years. Percentages are given in order to permit of comparisons. The eastern section has long held the largest place in medical education, and, as would be expected, still has the smallest percentage of students leaving to attend colleges in other sections, the percentage of those remaining in the eastern section being 92.3. The middle section is a close second, with 90.5 per cent. of its own resident students studying medicine in the home section. The southern section has 83.8 per cent. of its medical students studying in its own colleges, while the western section, having the smallest number of colleges, naturally has a smaller proportion of students (55 per cent.) attending in that section. Of the students who migrate from the middle and southern sections, the largest proportions go east while of those from the western section, the largest proportion attends colleges of the middle section. Altogether 2,330 students attended colleges outside of the section in which they lived during the session of 1910-1911. Of this number 998, or 42.6 per cent., went to the eastern section; 895, or 38.6 per cent., went to the middle section; 237, or 10.2 per cent., went to the southern section, and 200, or 8.6 per cent., went to the western section.

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[2] The Journal A. M. A., May 27, 1911, p. 1566.

THE YEAR IN MEDICAL EDUCATION

There have been several important developments in medical education during the past year. One was the beginning of the requirement for admission of one or two years of collegiate work by 22 of the better-class medical schools of the United States, making a total of 41[3] which are now enforcing the higher standard. Another important development was the action taken by the Association of American Medical Colleges providing that after Jan. 1, 1912, students with entrance conditions are not to be accepted by colleges in membership in that organization. One more state licensing board, that of Utah, adopted as its minimum requirement of preliminary education a year of collegiate work, and the board of Colorado has increased its requirement from one to two years of collegiate work. There are, therefore, nine states[3] that have adopted this higher standard of preliminary education. Another feature of the year is the increased development of special courses in tropical medicine and in public health work.[4] Still another, and probably the most important feature of the year, however, is the large amount of money given for medical education.[5] The amount probably exceeds the gifts of any previous year, and insures an even greater development for medical education in the immediate future. Indeed, the outlook for medical education from every point of view is very encouraging.

DICTATOR McCABE

When it was first announced that Congress had called for an investigation of the facts leading to the charges preferred against Dr. Wiley by Messrs. McCabe, Dunlap and Wickersham, THE JOURNAL expressed the opinion that no one would welcome such an investigation more than would Dr. Wiley, unless it was the general public. Although the body created by Congress to look into this matter has been in existence but a few days, the mass of evidence already presented shows how accurate THE JOURNAL's statement was. Every point brought out so far has put Dr Wiley in a still more favorable light, while at the same time it has proved how well founded is the lack of confidence which the public has in those who are fighting him. It has been shown conclusively that Secretary Wilson — unknowingly, probably — has been a passive tool of those vast interests which have made their millions by poisoning the country's food and sophisticating its drugs.

The active partner in this attempt to nullify the national pure food law and make its action abortive is Solicitor McCabe. According to the evidence presented, McCabe both falsified and expurgated the account of a court proceeding in at least one pure food case. A firm pleaded guilty to the charge, brought by Dr. Wiley's assistants, that certain soft drinks contained "cocain, benzoic acid and coal tar dye." Mr. McCabe would not permit this judgment to be made public in that form, but when the printer's "proof" came he erased the words "benzoic acid" and substituted the word "caffein." This, of course, makes the government report of the case an official falsehood, but apparently McCabe feels that falsifying is permissible when it is done in the interest of the conservation of sodium benzoate. The fact of the matter is, the real power behind the throne—so far as the administration of the Food and Drugs Act is concerned—is Solicitor McCabe. By framing and manipulating the departmental rules with all the skill of a pettifogging lawyer, he has put himself in a position of being sole judge whether cases against food "dopers" and "patent-medicine" fakers should or should not be prosecuted. Dr. Wiley's bureau investigates cases of food adulteration and drug misbranding, carefully and scientifically examines the products and submits evidence to show that certain foods or drugs are adulterated or misbranded. Mr. McCabe, by the autocratic use of powers that he has delegated to himself, may bury in the government files all the evidence submitted. That he has thus withheld from the courts evidence of violations of the law has been shown at the present congressional investigation.

It is not surprising that a man who could thus "protect" manufacturers who might have been proved guilty, should have altered the court's decrees when such decrees brought out facts regarding sodium benzoate that were distasteful to him and the "interests" he serves. The exercise of this autocratic power, which has long been known to those who were conversant with the inner workings of the Department of Agriculture, may explain why the New Hartford Canning Company, of which Vice-President Sherman is the reported head, was not prosecuted for selling short-weight products even though evidence to that effect had been collected by Dr. Wiley's assistants. It may also explain why the cases against the Duffy Malt Whiskey fraud, Kilmer's Swamp Root and scores of other similar preparations have never been brought to the courts.

The American people, after having fought for over seventeen years to get the Food and Drugs Act on the federal statute books, finally succeeded—thanks largely to the aggressiveness and honesty of the chief of the Bureau of Chemistry. That act, although not so strong or comprehensive as it might be, can still furnish a large degree of protection to the public. At the outset the chief of the Bureau of Chemistry tried vigorously and unflinchingly to enforce it. Such enforcement against vested wrongs and opulent dishonesty was distasteful to those in high places. The fortunes that might be made by polluting the food-supplies of the country and by the manufacture of "patent-medicines" were not to be abandoned without a struggle. Pressure was brought time and again to secure Dr. Wiley's removal, but in each case it was found that that official was too strongly entrenched in the hearts of the great American public to be removed on any mere trumped up charge. When the present charges were made against Dr. Wiley, the public and the press showed that they had confidence in him The investigation that was demanded, and that [illegible] being carried on, is proving as rapidly as possible [illegible] judgment of the press and of the public is to be [illegible] on. Dr. Wiley will come out of the case stronger and better loved than ever. His traducers, we believe, will be relegated to that political oblivion to which they belong.

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[3] See list on page 641.
[4] See page 653.
[5] See items on pages 650 to 652.

PHYSIOMEDICALISM

As will be noticed elsewhere in this issue, the last of the colleges which represented the physiomedical sect has gone out of existence. This sect has endured for three-quarters of a century and was one of the "schools" of medicine which have existed only in this country.

According to its adherents, physiomedicalism was founded in New England early in the last century by Samuel Thomson (1769-1843), a native of New Hampshire. Thomson was a self-educated man, a student of nature, who strongly advocated care of the stomach, good food and proper elimination together with vapor baths and sweating and also employment of certain botanic drugs such as lobelia, marigold and yellowroot. Many of his principles and methods are matters of common sense and, in fact, were not uncommonly employed by other successful physicians. The emphasis which was laid on them in a special book circulated by Thomson, however, no doubt led to the formation of this particular school of medicine and also drew into it a number of very able men, some of whom, from the educational standpoint at least, were destined to have a wider influence than Thomson himself.

Thomson was not altogether unselfish, however, in his efforts to cure the ailments of a suffering humanity. He secured from the government a patent giving him the exclusive use of certai [illegible] licines of which he was recognized as the origi [illegible] Thereupon he began a systematic monoj [illegible] selfishness than his friends were pre[illegible] small books outlining his principles and methods of treatment were sold for twenty dollars, including a written permit to one family to use his medicines. Agencies were established in all the principal cities and so-called botanic societies, made of holders of permits, organized. The income from this business must have been enormous. One agent alone in about three years' time is said to have collected about $80,000. Although enabled for many years by his patent rights to control this profitable enterprise, in time infringements became numerous and the latter part of Thomson's life was largely spent in contentions with his agents.

Although Thomson is recognized as the founder of physiomedicalism, he really opposed the formation of colleges. Dr. Alvin Curtis, who organized the first physiomedical college in 1838, had aroused Thomson's enmity by advocating a more thorough medical education. The first college was located at Columbus, Ohio, but was removed to Cincinnati, in 1841, where it continued under varying fortunes until about 1880. Other colleges known as "Thomsonian," "botanico-medical," or "physiomedical" colleges were organized later in Georgia, Massachusetts, Illinois, Indiana and Texas. So far as it is known no colleges were organized outside of the United States. Only about twelve colleges altogether were organized, omitting a fraudulent concern which was organized in Oklahoma, and only three or four were existing at any one time. Only three have been in existence since 1900, one each in Illinois, Indiana and Texas.

Medicine of to-day is more largely based on scientific facts and there is less room for the differences of opinion which in earlier times led to the formation of medical sects. Formerly valuable principles in the treatment of disease may have needed the emphasis which medical sects laid on them, but not so to-day In this day of the microscope, the special laboratory test, of full-time instructor and of medical research, all methods will be put to the test, the good will be utilized and the useless will be discarded. Sectarianism, dissension and doubt must give way to scientific facts and to certainty.

SEVEN YEARS' PROGRESS IN MEDICAL EDUCATION

Those who have been watching the development of medical education in this country have noted with no little astonishment and gratification the remarkable progress that has been made in recent years and particularly since the American Medical Association created its permanent committee, the Council on Medical Education. At the beginning of its work in 1905, after a thorough investigation of conditions, the Council formulated two standards of medical education, one for immediate adoption and an ideal standard for future consideration. These standards were not for any one state or for any one section, but for the entire country. The result is that nearly all colleges are up to or beyond the standard recommended in 1905 for "immediate adoption," while more than a third of the colleges (42) have, so far as entrance requirements are concerned, adopted the "ideal," namely, a four-year high school education, plus at least one year to include thorough courses in physics, chemistry, biology and modern languages.

During 1906 and 1907, the Council made the first complete personal tour of inspection of the medical colleges of the United States that had ever been made, and in 1907, reported its findings at its annual conference and to the House of Delegates of the American Medical Association. This inspection revealed the fact that nearly a third of the medical schools existing at that time were seriously defective in their methods, standards and equipment. Since that report was made the decrease in the number of these inferior colleges has been marked, while on the other hand, there has begun a corresponding improvement in many other colleges. The second inspection was completed in 1910, and resulted in the publication of a classified list of medical colleges. This doubtless gave added impetus to the improvements being made and to the further elimination of unworthy colleges. In seven years, therefore, the over-supply of medical schools has been reduced in number, quantity giving way to quality, and a decided check has been placed on the rapid multiplication of inferior schools.

In 1908 and 1909, a thorough study of the medical college curriculum was made by a special committee of the Council, made up of over a hundred leading medical educators, to ascertain the relative value of the subjects of the curriculum in order that proper emphasis might be laid on them in the medical course. This special study also included the character of equipment, methods of instruction, qualifications of teachers, necessary hospital facilities, etc. As a result of this and the Council's reports based on its actual inspection, an unprecedented improvement in the physical equipment and methods of medical education was started. New college buildings have been erected; more teaching hospitals have been secured; new laboratories have been equipped and more expert full-time teachers employed.

During each of the seven years the Council has held a special, delegated conference attended largely by members of state licensing boards, university presidents, representatives of medical colleges and other prominent educators. These conferences have had a wide and powerful influence in the progress that has been made. They have resulted in more uniformity of effort on the part of all forces working for the betterment of educational standards and have provided opportunity for the study and discussion of educational problems. Above all, however, at these conferences, the attention of university presidents and others has been drawn to the absolute necessity of state aid or private endowment for medical schools. As a direct or indirect result of this campaign, the amount of money given for medical education has increased from a few thousands of dollars during 1904 to several millions of dollars during the last year. This is indeed encouraging and gives promise of even greater advancement in the immediate future.

Of course, not all the credit for these vast improvements belongs to the Council on Medical Education. Nevertheless this body, representing the organized profession of the country and holding up standards of national and not sectional scope, was bound to have a powerful influence. It has cooperated with the other agencies which have been doing masterly work in their various fields, and has brought about greater harmony and more unanimity of effort. These achievements are the more gratifying since all the agencies save one, the Carnegie Foundation for the Advancement of Teaching, are entirely made up of physicians and fully represent the medical profession. Meanwhile, no one is better acquainted with the needs of the people in regard to the prevention and cure of disease and the preservation of health and healthful conditions than the medical profession itself. And that the medical profession may be even more capable of caring for these needs, nothing is more important than the continued improvement of medical education.

Current Comment

RADIO-ACTIVE MENTHOL-IODIN OR DIORADIN

Another consumption cure! This time it is one of the semi-ethical, quasi-respectable type brought out by a European physician, delivered to the world *via* sensational newspaper articles in which the "chemical name" of the preparation is emphasized and the proprietary name kept in the background. The latest panacea is marketed under the proprietary name Dioradin and is described by its "discoverer" as "radio-active menthol-iodin." Professor de Szendeffy of Budapest is the originator of the new "specific"; Drs. Samuel Bernheim and Louis Dieupart of Paris seem to have been the ones selected by Professor de Szendeffy to deliver the news of the wonderful discovery to the public—and incidentally to the profession. Dioradin comes in boxes of six ampoules, price $3.60. It is administered intramuscularly. Its composition, as described both in the American newspapers and in the European medical journals, is said to be:

Peptonized iodin	0.75 cg.
Menthol	0.06 cg.
Radium-barium chlorid in ethereal solution	1/10 drop

Of course, what peptonized iodin is, no one but the inventor of Dioradin seems to know. Radium-barium chlorid may be a definite product, but there is a delightful vagueness regarding the strength of the "ethereal solution" that is employed. The same vagueness is found in the description of cases in which the "cure" has been tried. Glittering generalities abound and, while these make interesting newspaper reading, they are very unsatisfying to the physician who would like definite, scientific evidence. Possibly Professor de Szendeffy has a remedy that may prove of moderate value in the treatment of tuberculosis; if so, it is unfortunate both for the public and for scientific medicine that it has been introduced by such crude methods. As the London *Lancet* says, in summing up the case against this much-vaunted remedy: "The exploitation in the lay press of immature work in regard to any medical question is particularly to be deprecated. Hopes are raised in the minds of many sufferers which are fore-doomed to disappointment, more especially when they rest on such slender foundation as the treatment here suggested."

THERE'S A REASON

Our readers will remember that when the manufacturer of Postum Cereal and Grape-Nuts was forced to show his hand, it developed that the only "famous physician" whose name was signed to a Postum testimonial "turned out to be a poor old broken-down homeopath, who is now working in a printer's establishment," and who received $10 for his testimonial. These facts came as a surprise to those who are familiar with the testimonial business. When one considers how easy it is to get physicians of a certain class to write testimonials for any food or medicine bearing a proprietary name, it seems strange that Mr. Post should have had such a poor collection. Since the trial, at which these facts were brought out, this enterprising breakfast-food manufacturer has been endeavoring, apparently, to remedy the deficiency that existed in his advertising department. Unsigned testimonials from physicians are being published, the names and addresses to be furnished on application. How such testimonials are obtained, we do not know. A possible explanation has been suggested by physicians who have sent in some letters to The Journal. These letters consist of personal communications from the *American Journal of Clinical Medicine (née Alkaloidal Clinic)* to physicians over the country and read as follows:

> *Dear Doctor:* The advertising of Postum and Grape-Nuts has been appearing in *Clinical Medicine* for the past ten years. We have always believed in the purity of these products. In fact, we have used them ourselves and have recommended them extensively.
>
> Will you cooperate to the extent of giving us your opinion of these products? Have you used them personally and have you recommended them to your patients, and with what results?
>
> Your reply, using the stamped return envelope enclosed, will be appreciated.
>
> Yours sincerely,
> The American Journal of Clinical Medicine.

A study of the wording of this letter makes it plain that only those physicians who hold the same favorable opinions regarding Grape-Nuts and Postum that are held by the *American Journal of Clinical Medicine* will be likely to answer this ingenuous appeal. Such testimony, of course, will please not only Mr. Post, but those publications that wish some excuse for participating in the benefits of his million-dollar advertising campaign. Six years ago The Journal showed that Duffy's Malt Whiskey was being advertised by means of fraudulent testimonials. Since that time the Duffy concern has worked up a nice line of bona fide testimonials from not-too-particular physicians. The task, apparently, was neither difficult nor expensive. History is about to repeat itself, it seems, in the case of Postum and Grape-Nuts. The spectacle is not a pretty one and is somewhat disheartening to those who would believe that the medical profession is becoming more cultured and scientific. We hesitate to believe that, in his search for testimonials, Mr. Post felt impelled to enlist the help of that particular journal. While to collect such testimony through such an instrumentality may be perfectly logical, the ease with which it may be otherwise obtained makes it quite unnecessary.

DR. FRANK P. FOSTER

Our obituary columns this week contain the announcement of the death of Dr. Frank P. Foster, for over thirty years editor of the *New York Medical Journal.* Dr. Foster, since the death of Dr. George F. Schrady a few years ago, has been recognized as the dean of the medical editors of this country. Dr. Foster's energies were varied, but especially literary in character. Aside from his contributions to the periodical of which he was editor, he has written several books, and has contributed to many others. As a monument of his literary labors may be mentioned the "Encyclopedic Medical Dictionary" which bears his name, a four-volume book that has been translated into seven different languages. Dr. Foster was a moral and intellectual force in medical literature. Until recently he took an active interest in all that related to medicine, and his influence was always in the right direction. His friends count it a privilege to recall his fine character, his charitable judgment, his facile pen and his ever-ready assistance so freely given from his great store of knowledge.

AMERICAN MEDICAL DIRECTORY—THIRD EDITION

In this week's Journal appears an insert announcement of the third edition of the American Medical Directory, now in course of preparation. Since the publication of the second edition in the fall of 1909, a large amount of additional data has been secured regarding medical schools, hospitals and public institutions, professional organizations and especially regarding physicians themselves. The material which was obtained for the two previous editions has been carefully revised and corrected. The work which has been done insures a third edition which will be fuller, more complete and more accurate than either of the preceding editions. Based on the only firm foundation which we have in this country, viz., the records of the state licensing boards and the alumni lists of medical colleges, making no distinction between classes of physicians so far as information is concerned and containing three times as much data as any other medical directory published, the American Medical Directory is recognized as the standard official authoritative directory of the medical profession of the United States and Canada. It is the only national directory published as a non-commercial enterprise and must be issued for some time to come at a financial loss. Much expense has been incurred by the Association in getting the fundamental data covering especially the school of graduation and license. The publication of such a reference book is of direct interest and value to every American physician, medical college and hospital. We earnestly bespeak for this very important work the support of every member of our profession. It is hoped that each physician who is asked to assist in furnishing information will respond willingly and promptly. By united effort and cooperation it will be possible to make this publication a realization of the ideal for the attainment of which it was inaugurated, namely, an official and accurate roster of the American medical profession.

LESLIE'S WEEKLY—A CONSISTENT JOURNAL

The clipping bureau service of the American Medical Association is a most complete one. We receive, daily, hundreds of clippings from the various newspapers all over the country. Since the abortive attempt of Messrs. Wickersham, McCabe and Dunlap to oust Dr. Wiley has become public property, we have received newspaper items on the subject literally by the thousand. The unanimity with which the press of the United States has supported Dr. Wiley in his present fight is a surprise even to those who know how well the chief of the Bureau of Chemistry deserves such support. Among the one or two news items and editorial comments that show their writers to be unfriendly to Dr. Wiley and antagonistic to his work, one appeared in *Leslie's Weekly*, which expresses itself in part as follows:

> "Dr. Wiley is not the author of the pure-food law. It would continue to be enforced whether he were in the public service or not. He has occupied a subordinate place in the department, but has always managed to make it appear that he was the only champion of pure food at Washington. The public may rest assured that the pure-food law will be enforced just as vigorously and earnestly whether Wiley stays or goes."

This editorial statement is one that those who are familiar with *Leslie's Weekly* would logically expect to find in that publication. The antagonism of some journals is to be desired rather than their approbation; *Leslie's* is one of them. For years there have appeared at intervals speciously written "special articles" in this publication, devoted to the exploitation of "patent medicines" and quackery. Oren Oneal, the eye quack of Chicago, the wide-spread fake Viavi, and the Alexander cancer cure—each of these in turn has been the subject of fulsomely laudatory articles appearing in *Leslie's Weekly*. Under the circumstances, it is evident that this journal's antagonism to Dr. Wiley is one more point in that gentleman's favor. Had it expressed itself in the same terms of warm commendation that have characterized the editorial expressions throughout the country generally, it would have been a grave embarrassment to the chief of the Bureau of Chemistry. In the estimation of the public, one of Dr. Wiley's greatest assets is the character of the enemies he has made. The opposition of the food dopers and the "patent-medicine" makers has long been known; *Leslie's* having lined itself up with its logical associates, the public will find one more reason for upholding Dr. Wiley.

INTERESTING DETAILS COMING

The investigation by a congressional committee of the charges against Dr. Wiley is bringing out some interesting details. When the hearing is over, we shall probably publish such part of the evidence as will prove of value to physicians.

EDUCATIONAL PROGRESS IN GEORGIA

By recent legislation the Medical College of Georgia, located at Augusta, has been made an integral part of the University of Georgia. The people of Augusta had already awakened to the needs of its medical school and had raised $46,000 by subscription for its equipment. The city of Augusta has agreed to erect a new city hospital at a cost of $200,000 on the campus of the medical school and has further agreed to place it under the perpetual and unrestricted control of the medical faculty as a teaching hospital. It was doubtless this energetic action by the city and people of Augusta which won for them favorable action by the Georgia legislature. It is to be hoped that this action creating a state-supported medical school will lead also to the securing of better legal standards of medical education and licensure in that state. Georgia cannot well afford to assume the responsibility of furnishing a good training for those who are to have in charge the lives and health of the people of that commonwealth, and at the same time leave the people unprotected against the ignorant and poorly trained graduates of low grade colleges of that and other states.

Medical News

ARKANSAS

Society to be Organized.—The North Arkansas Four Counties Medical Society is to be organized at a meeting to be held at Hardy, September 6 and 7, under the auspices of the Sharp County Medical Society.

Railway Surgeons Meet.—At the semi-annual meeting of the surgeons of the Missouri and North Arkansas Railroad, Dr. Hugh L. Routh, Batavia, was elected president, and Searcy was selected as the next place of meeting.

Personal.—Dr. William T. McCurry, Texarkana, with his wife and daughter, sail for Europe next week.——Dr. A. G. Thompson, Pine Bluff, physician for the Sawyer and Austin Lumber Co., has resigned, to take effect September 1.——Dr. Monroe D. McClain, Little Rock, has been elected state physician of the Modern Woodmen of America.

Typhoid in Little Rock.—Surgeon W. H. Frost, Public Health and Marine-Hospital Service, who has been making an investigation of the typhoid situation in Little Rock, reports that while it is true that Little Rock has suffered during the last two months from an epidemic of typhoid fever, there is no need for alarm in this regard in the city as the number of cases is steadily on the decline.

CALIFORNIA

Branch Society Meets.—At the annual meeting of the Santa Monica Branch of the Los Angeles County Medical Association, Dr. John A. Balsley, Santa Monica, was elected president; Dr. H. Wilson Levengood, Ocean Park, vice-president, and Dr. George A. Fielding, Sawtell, secretary-treasurer.

Medical Society Condemns Lodge Practice.—The Santa Clara County Medical Society, at its annual meeting, July 19, is reported to have adopted amendments to its by-laws condemning the practice of members of caring for lodge members on the contract plan. The amendments allow members of the society to care for railroad contract work and work in boarding schools and in charitable institutions.

New Home for Lane Library.—The Lane Library is soon to be housed in a new three-story building to be erected on the corner of Sacramento and Webster Streets, San Francisco, at a cost of $100,000. The building will be ready for occupancy at the end of the school year and will accommodate the Lane Medical Library which was founded by Dr. Lane, former president of Cooper Medical College, and the medical library of Leland Stanford University.

COLORADO

No Public Drinking Cups.—The law prohibiting common drinking cups in public places is now in effect in Colorado.

Bubbling fountains have in many places taken the place of the cups.

New Hospital Wing Opened.—The new wing of the Denver County Hospital has been formally opened. The building has cost $120,000 and will accommodate eighty patients, and contains a laboratory, maternity wards, children's wards and operating rooms.

State Dairy Law.—The new state dairy law forbids the handling of milk in storerooms where oil, poultry or vegetables are kept. Preservatives are barred. The dealer with one cow, selling milk to his neighbor is under the same regulations as the large dairyman and must obtain a license. Milk cans are not allowed to stand at railroad stations for more than one day.

Health Train for Colorado.—The State Board of Health has announced its intention of adopting the method used by the Louisiana State Board of Health for the promulgation of information regarding health and sanitation and expects to start a special health train on a tour of Colorado about January 1. During the tour, which is to be educational, demonstrations regarding pure food, health and sanitary matters will be made, lectures will be delivered and literature will be distributed.

GEORGIA

Open-Air School Established.—The first open-air school to be established in the South will be opened in Atlanta next month under the auspices of the Ninth Avenue Presbyterian Church.

City Hospital Planned.—A movement has been inaugurated by the citizens of Dublin for the establishment of a hospital in that city. James M. Finn has been appointed chairman and R. M. Martin, secretary of the committee on the hospital enterprise.

District Meeting.—At the annual meeting of the First District Medical Society held at Atlanta, August 7, the following officers were elected: president, Dr. Edward T. Coleman, Greymont; vice-presidents, Drs. Lorin V. Strickland, Cobbtown, and John W. Daniel, Savannah; and secretary-treasurer, Dr. John M. Sigman, Savannah.

Medical College Directors Named.—The governor has appointed the following directors of the Medical College of Georgia, Augusta: Hon. A. L. Miller, Macon; Hon. Enoch H. Calloway, Augusta; Hon. John T. West, Thomson, and Hon. William A. Lattimer, Augusta, for two years, and Hon. P. A. Stovall, Savannah, and Hon. L. C. Hayne, Augusta, for six years from August 3, 1911.

Medical Scholarships Announced.—Scholarships in the Medical College of Georgia, Augusta, have been bestowed on twenty-six young Georgians by the governor as follows: first district—D. C. Colson, Sylvania, Screven County; Gordon Herrington, Nunez, Emanuel. Second district—T. P. Brown, Beachton, Grady; E. M. Walker, Tifton, Tift. Third district—W. B. Watts, Jr., Byromville, Dooly; C. C. Frederick, Wellston, Houston. Fourth district—Arthur H. Drane, Buena Vista, Marion; J. C. Bonner, Carrollton, Carroll. Fifth district—Nathan G. Rice, Atlanta, Fulton; J. C. Savage, Jr., Atlanta, Fulton. Sixth district—Linn C. McAfee, Macon, Bibb; B. W. Freene, Haddock, Jones. Seventh district—Arthur Horton, Ranger, Gordon; Egbert M. Townsend, Tilton, Whitfield. Eighth district—Wilbur Gibson Jenkins, Eatonton, Putnam; Earle Newsom, Union Point, Greene. Ninth district—J. W. Wallace, Commerce, Jackson; T. L. Holcombe, Statham, Jackson. Tenth district—William V. Verdery, Harlem, Columbia; John R. Lewis, Sparta, Hancock. Eleventh district—J. C. Carter, Jr., Dublin, Laurens; Warren L. Hall, Nicholls, Coffee; and at large—Robert C. Montgomery, Junction City, Tolbert; J. L. Logue, Louisville, Jefferson; Garnet Edwards, Crawfordville, Taliaferro, and Fred Ware, Wrightsville, Johnson.

ILLINOIS

New Asylum Site.—The State Board of Administration has had drafted the itinerary of a trip to visit the seventy-one sites offered for the new state insane hospital for which $1,500,000 has been appropriated by the legislature.

Hospital Closes.—The Franciscan Sisters' Hospital, Highland, known as St. Joseph's Hospital, closed its doors temporarily, August 9, on account of lack of funds. The Sisters claim that they are obliged to accept a certain percentage of charity patients and that for the county patients the hospital receives only 50 cents a day for the first fifteen days and 20 cents a day thereafter.

The New Cook County Hospital.—Preliminary plans for the new Cook County hospital have been completed by the county architect. The main portion of the new structure, first to be erected, will cost between $2,000,000 and $3,000,000. It will be nine stories high, 950 feet long and 59 feet wide, fronting on Harrison Street, and will accommodate approximately 1,300 patients. On the ninth floor of the building will be seven operating rooms and two amphitheaters, together with the necessary anesthetic and recovery rooms, etc. There will also be four roof-gardens at the disposal of the patients.

Personal.—Dr. John A. Pratt, Aurora, has been appointed oculist for the Aurora division of the Burlington system. ——Dr. James A. Rutledge, Elgin, has been appointed medical director of the Modern Woodmen's Sanatorium, Colorado Springs, and will assume charge about September 1. At present the sanatorium accommodates 180 patients, but when completed the capacity will be 400.——Dr. Elmer E. Nystrom, assistant physician of Peoria County, who has been dangerously ill with an infection of the ear, is convalescent.——Dr. Charles B. Dirks, a member of the staff of the Kankakee State Hospital, has been appointed assistant superintendent of the Elgin State Hospital.——Dr. Charles E. Crawford, Rockford, has been elected grand medical examiner of the Sons of St. George, Illinois jurisdiction.

Chicago

Health Exhibit Goes to Canada.—The Chicago Department of Health has decided to send its health exhibit, in charge of Dr. C. St. Clair Drake, to the Canadian National Exposition which is to be held in Toronto from August 25 to September 11.

Large Employers of Labor Oppose Tuberculosis.—The directors of the Chicago Tuberculosis Institute announce that they are ready, through their advisory committee on factories, to enter into practical cooperation with large employers of labor with a view to weeding out and treating employees suffering from tuberculosis and to the prevention of the spread of the disease among their fellow workers. A start has been made at the plant of the International Harvester Company and two of the largest mail-order houses already have established cottages for the treatment of employees suffering from tuberculosis.

Personal.—Dr. Ralph R. Campbell announces his return to Chicago and resumption of practice.——Dr. and Mrs. Wesley J. Woolston have returned from Europe.——Dr. Harry S. Gradle has been elected professor of ophthalmology in the Chicago Ear, Eye, Nose and Throat College.——Dr. and Mrs. Harry D. Orr have returned from Europe.——Dr. Frank Branen sustained painful injuries, August 6, in a collision between an automobile and a street car.——Dr. Joseph P. Smyth has been elected high chief medical examiner of the Catholic Order of Foresters.——Dr. Alexander Hugh Ferguson is reported to be seriously ill with septicemia due to a carbuncle.

INDIANA

Hospital Enlarged.—The Lutheran Hospital Association, Fort Wayne, has purchased adjoining property, the buildings on which, after remodeling, will be used for a maternity.

Raise Money for Hospital.—At a mass meeting of the citizens of Gary, August 7, $20,000 was raised for the assistance of Mercy Hospital in that city. This amount is needed to complete the new hospital building which will have cost when completed $100,000.

Personal.—The residence on the farm near Noblesville of Dr. Simon P. Scherer, Indianapolis, was burned, August 10.——Dr. Fred E. Jackson, intern at the City Dispensary, Indianapolis, has resigned.——Dr. G. S. Hobbs, intern at the Methodist Episcopal Hospital, Indianapolis, has completed his term of service and commenced practice in that city.——Dr. Lewis Maxwell, Indianapolis, has returned after a year abroad.——Dr. F. W. Hixon has been commissioned first lieutenant, medical corps, Indiana National Guard.——Dr. Jonas Stewart, Anderson, was thrown from his buggy in a runaway accident, August 4, and painfully injured.——Dr. Robert A. Bunch, Muncie, who has been seriously ill, is reported to be convalescent.——Dr. Joseph E. Showalter, Waterloo, has been appointed a member and secretary of the Waterloo school board.

IOWA

New State Journal.—Iowa has been added to the list of states whose medical associations publish journals. The *Journal of the Iowa State Medical Society* made its appearance, July 15, with Dr. David S. Fairchild, Clinton, as editor and Dr. Clyde A. Boice, Washington, as associate editor. The first issue contains a report of the proceedings of the state medical society, the president's address, address on surgery, proceedings of the House of Delegates and a list of officers and directors of the state, district and county societies.

KENTUCKY

Gets Field Hospital Equipment.—The Kentucky State Guard has obtained from the War Department a field hospital equipment and has organized a field hospital with Major Charles W. Hibbitt, Louisville, in command.

New Sanatorium.—Work will be begun shortly under the provisions of the will of the late Dr. John A. Ouchterlony for the construction of a tuberculosis sanatorium on the grounds of the Sisters of Nazareth on the Newberg road about two miles from Louisville.

The State Board and Pellagra.—A special meeting of the State Board of Health was held at Corbin, August 9, to discuss the problem of pellagra, more than 100 cases of which have been reported from Bell and Whitely counties in addition to twenty-four cases reported from the Lexington and Hopkinsville state hospitals for the insane.

Transfer Patients from Hospital.—A contract for moving the inmates and the equipment from the old city hospital, Louisville, to the temporary hospital located in the building of the former Kentucky School of Medicine, will be awarded this week by the board of public safety. The patients suffering from tuberculosis will be moved to the Waverly Hills Sanatorium, as no provision is to be made in the new city hospital for cases of tuberculosis.

Personal.—Dr. Joseph M. Mathews, Louisville, has been appointed a member of the State Board of Health, vice Dr. William Bailey, deceased.——Dr. William A. Quinn, Henderson, has been appointed a member of the State Board of Health to succeed himself.——Dr. Henry Enos Tuley has resigned as professor of obstetrics at the University of Louisville and has been succeeded by Dr. William B. Doherty. Dr. Doherty has also been appointed a member of the State Library Commission.——Dr. Charles J. Lockhart, Owensboro, was seriously injured in a runaway accident, July 14.——Dr. Lee C. Redmon, Lexington, has been elected medical supervisor of the city schools.

LOUISIANA

A Good Record.—The president and secretary of the Caldwell Parish Medical Society announce that every physician in the parish is a member of the society.

Personal.—Dr. Stephen W. Stafford, New Orleans, intern in the Charity Hospital, was operated on in that institution, August 7.——Dr. Louis J. Genella has been appointed superintendent of the scout camp at Clairmont Harbor, vice Dr. Mayer Newhauser.——Dr. James F. Smith, Leesville, is reported to be ill at his old home in Eutaw, Ala.——Dr. William T. O'Reilly, chairman of the State Board of Health, has gone to Nicaragua for a vacation.——Dr. Erastus J. Lyons, Lake Charles, after practicing for fifty years in Calcasieu Parish, has retired from practice.——Dr. Cornelius A. M. Dorrestein has been appointed outdoor clinical assistant in the gynecologic and obstetric department of Touro Infirmary, New Orleans.——Dr. E. C. Samuel has been appointed junior in the department of radiology, and Dr. Abraham L. Levin, outdoor clinical assistant in the gastro-intestinal service of the department of medicine.——Dr. Frazer B. Gurd, junior pathologist of Touro Infirmary, has resigned.——Dr. Marion S. Souchon has been appointed a member of the board on administration of the charity hospital, New Orleans, vice Dr. George S. Bel, resigned.

MARYLAND

Baltimore

Zones of Quiet.—Alderman T. O. Heatwole has prepared an ordinance which will be introduced at the meeting of the city council in September. The ordinance will empower the city engineer to erect signs at intersections of streets in which there are hospitals or sanatoriums, and these will be known as "Hospital Streets." In such localities the ringing of streetcar bells, the playing of street organs, crying of hucksters, etc., are prohibited under a penalty of a fine of $10.00.

Personal.—Dr. Richard C. Massenburg, Towsen, is ill with typhoid fever.——Dr. Robert Hoffman sailed for Germany, August 10.——Dr. Winford H. Smith, new superintendent of the Johns Hopkins Hospital, assumed his duties August 15, succeeding Dr. Henry M. Hurd who had been superintendent of the institution for fifteen years.——Dr. Charles Phillips Emerson, associate professor in medicine in Johns Hopkins University has accepted the deanship of the Indiana University School of Medicine, Indianapolis, vice Dr. Allison Maxwell.

MASSACHUSETTS

New Private Hospital.—A movement has been started in Boston by Drs. Arthur T. Cabot, William T. Councilman, Reginald H. Fitz, Joseph L. Goodale, Francis B. Harrington, Henry Jackson, Robert W. Lovett, John L. Morse, Edward Reynolds, Maurice H. Richardson, Frederick C. Shattuck, Edward W. Taylor, Paul Thorndike and J. Collins Warren to provide hospital facilities for private patients who are able to pay for the service they receive. It is proposed to offer $500,000 worth in stock and as much more in bonds in order to provide the funds necessary for this undertaking.

Officials of Hospitals.—Dr. Maurice H. Richardson has been appointed surgeon-in-chief of the Massachusetts General Hospital with Drs. Francis B. Harrington and Samuel J. Mixter as assistants, with the titles of chiefs-of-service. Dr. George Morse has been placed in supervision of the work of house officers with the title of house surgeon. Dr. Hugh Cabot will be placed in charge of the genito-urinary cases. The outpatient staff has been increased and now includes Drs. Channing C. Simmons, Samuel Robinson, Beth Vincent and John Homans with Drs. John B. Hartwell, Wyman Whittemore, Edward P. Richardson and William J. Mixter as assistants.——Dr. Herbert B. Howard is announced as superintendent, Dr. Harvey Cushing, surgeon-in-chief, and Dr. Henry A. Christian, physician-in-chief of the new Peter Bent Brigham Hospital.

The New Peter Bent Brigham Hospital.—Ground was broken, August 7, for the Peter Bent Brigham Hospital, which will eventually comprise fourteen buildings on Huntington Avenue and Francis Street, next to the Harvard Medical School. The late Peter Bent Brigham bequeathed about $1,000,000 to found a hospital in Boston "for the care of sick persons in indigent circumstances residing in the county of Suffolk." By the contract the buildings are to be complete in fourteen months. They are to be of brick and limestone. The main architectural features will be the administration building and its two flanking structures which will form an amphitheater. There will be five wards which will have their ground level only one low step above the ground. To the westward of the entrance court will be the dispensary building and the general clinical amphitheater, which will be connected by covered corridors with the administration building, the dispensary and the nurses' home. To the northwest of the administration building will be the domestic building in which all the food will be prepared for the hospital staff, nurses and patients, and this building will be connected by a corridor with the main building. Westward from the domestic building comes the surgical, medical and pathological buildings. The superintendent's house will be to the east of the medical building. The wards first to be built will accommodate 240 patients.

MICHIGAN

Bequests.—By the will of the late Henry A. Cleland, Detroit, $5,000 is left to the Children's Free Hospital, Detroit, and $3,000 to the Wayne County Medical Association.

Mason to Have Private Hospital.—A house has been purchased by F. P. Dean which will be remodeled and equipped by Dr. Richard H. Alexander, Dansville, as a private hospital.

Fire Destroys Medical Building.—The western half of the medical building, one of the oldest structures on the campus of the University of Michigan, Ann Arbor, was destroyed, August 12, by fire believed to have been of incendiary origin.

Personal.—Dr. Conrad George, Jr., Ann Arbor, was seriously burned in the face and eyes by splashing of sulphuric acid from the battery of his automobile.——Dr. Andrew T. Sherman, Detroit, has purchased the Anhut Apartments on Trumbull Avenue.

Antituberculosis Society Elects.—The Jackson County Association for the Study and Prevention of Tuberculosis at its regular meeting elected the following officers: president, E. J. Ryerson; vice-president, Dr. Peter Hyndman; secretary, Dr. Harry D. Obert (reelected), and treasurer, Fred Helmar (reelected). After the meeting a board of directors was elected, composed of the officers and enough additional members to make a total of fifty, including representative business men and women of Jackson. A tag or membership day is soon to be held to enlist funds for the erection of a modern sanatorium.

MINNESOTA

Fails to Pass Enabling Act.—Although the state legislature appropriated $500 to be used to defray the expenses of a board to be known as the State Tuberculosis Commission, it failed to pass the necessary enabling act, and as a result the governor has been advised by the attorney general that he has no power to create such a commission with authority to expend the money appropriated.

Personal.—Dr. John E. Corrigan has been appointed health officer and a member of the board of health of Spooner.——Dr. Edward J. Davis, Minneapolis, physician of the Minnesota Old Soldiers' Home, has resigned because of ill health.——Dr. Julian A. DuBois has been appointed physician to the State Home School for Girls, Sauk Centre.——Dr. William H. Hart, Duluth, superintendent of the St. Louis County Sanatorium, has resigned to take charge of the antituberculosis work in Saskatchewan.

Society Merger.—At the joint meeting of the Southern Minnesota and the Minnesota Valley Medical Associations held in Rochester, August 3 and 4, the merger of the societies was perfected and the following officers were elected: president, Dr. Louis A. Fritsche, New Ulm; vice-presidents, Drs. Hugh F. McGaughey, Winona, and John E. Crewe, Rochester; and secretary-treasurer, Dr. William T. Adams, Elgin. One of the features of the evening was the memoir of the late Dr. William W. Mayo, Rochester, presented by Dr. Charles Hill, Pine Island, a physician now in his eighty-fifth year, who forty years ago was associated with Dr. Mayo in St. Paul.

NEBRASKA

Personal.—Dr. Cyrus L. and Leta M. Pickett, formerly of Tecumseh, missionaries of the Christian Church at Laoag, P. I., who have been in the United States for several months, are about to return to the Philippine Islands, sailing from San Francisco, September 3.——Dr. J. H. Stough, Chadron, has recovered from his recent illness.

Typhoid Situation at Beatrice.—An epidemic of typhoid fever is reported to be raging at the Nebraska Institution for Feeble-Minded Youths, Beatrice, where there are twenty-eight cases, including the superintendent and six attendants, with two deaths thus far. Dr. William H. Thomas, Pickrell, the superintendent is reported to be critically ill.

New Hospitals.—The construction of the Omaha Surgical Hospital, which is to be erected for Dr. Albert P. Condon, has been commenced. The building will be 70 by 50 feet, two stories and one-half in height, and will have twenty-three private rooms in addition to two operating rooms, and the necessary sterilizing and etherizing rooms. The building is to cost about $50,000.——The former Holdredge home has been purchased for $50,000 by eight physicians of Omaha, and together with the house next to it will be remodeled as a hospital especially for nervous diseases. The institution will be able to accommodate about forty patients.

NEW JERSEY

Personal.—Dr. Duncan W. Blake, Jr., has been reelected medical inspector of the public schools of Gloucester.——Dr. William G. Schauffler, Lakewood, has been elected president of the new State Board of Education.

Typhoid Epidemic in Clayton.—Because of a serious outbreak of typhoid fever in Clayton, a thorough investigation is being made of every house, with special inspection of drains and sewer. The drinking water of the town is being tested. As soon as the reports come from the laboratory at Trenton, there will be a meeting of the Clayton board of health, the state board and the council of Clayton.

Reorganization of Medical Corps.—The Medical Department of the National Guard of New Jersey has now conformed to the army standard and will henceforth be known as the Medical Corps, N. G., N. J., and the officers will hereafter be designated as officers of the medical corps and will be assigned to the various organizations in the service. The reorganization has been under the direction of Lieut.-Col. Henry Allers, Harrison, assisted by Majors Paul M. Mecray, Camden, and James T. Wyckoff, Leonia. Requisition has been made for a fully equipped field hospital.

NEW YORK

Outing for Medical Staff.—The medical staff of the Syracuse Hospital for Women and Children was entertained by a dinner and outing by Dr. Hersey Goodwin Locke, Syracuse, president of the staff, at his home in Marcellus, July 26.

Cost of State Charities.—The fiscal supervisor of state charities shows in his annual report that the gross expenditures of the institutions reporting to him amount to $2,834,063. The cost of supervising fiscal affairs of institutions was less than 1¼ per cent.

Personal.—Dr. James V. May of Binghamton, has been appointed superintendent of Matteawan State Hospital for the Criminal Insane to succeed Dr. Robert B. Lamb, Fiskill-on-the-Hudson, who recently resigned.——Dr. Frank W. McMorrow, Syracuse, is spending the summer abroad.

Shows Gratitude by Gift.—Mrs. Cyrus H. McCormick, Chicago, has presented the Ithaca Hospital with a new *x*-ray machine at a cost of $500, in appreciation of the careful and prompt attention received at the hospital by her grand-niece, who was injured recently in an automobile accident.

G. A. R. Medical Bureau.—The formation of the Grand Army of the Republic Relief Bureau for the free use of all veterans of the Civil War in the State of New York is announced by Dr. Thomas W. Topham, Brooklyn, medical director of the Department of New York. The personnel of the bureau is as follows: Dr. Lewis S. Pilcher, Brooklyn, surgery; Dr. George Thomas Stevens, New York City, diseases of the eye; Dr. Wendell C. Phillips, diseases of the nose, ear and throat; Dr. Thomas W. Topham, Brooklyn, electrical therapeutics; Dr. J. Bentley Squier, New York City, genito-urinary diseases; Dr. Winfield Ayres, New York City, diseases of the bladder; Dr. Harold Barclay, New York City, diseases of digestion, and Dr. Alcinous B. Jamison, New York City, intestinal diseases.

New York City

Office Building for Physicians.—Plans have been filed for a seven-story building for physicians on West Seventy-Second Street to cost $65,000.

New Hospital.—A charter for a new Lutheran Hospital has been filed with the State Board of Charities and $200,000 has been pledged towards the enterprise.

Health Board to Move.—The city has leased the Abingdon Building, a new building not yet completed, at the corner of Center and Walker Streets, which will be occupied by the Department of Health. The annual rental will be $58,500 and the lease is for ten years.

Mediterranean Liners Held.—The steamers *Calabria* and the *Venezia* which arrived from the Mediterranean on August 11 are being held at quarantine. There was a death from cholera on board the *Venezia* on August 7, while the *Calabria* was held simply as a precautionary measure because she came from Naples.

Bequests to Charity.—The will of the late E. C. Whitney of New York gives $5,000 to endow a bed in the Orthopedic Hospital.——Mrs. Russell Sage has given $5,000 to the building fund of St. Joseph's Hospital at Far Rockaway, N. Y.——The will of the late Simon E. Bernheim leaves $2,500 to Mount Sinai Hospital, Home for Aged and Infirm, and the German Hospital.

Optometry Course at Columbia.—The department of extension teaching of Columbia University announces that it will give a two years' course for optometrists in answer to a special request from the Department of Education of the State of New York. The course is open to anyone who has completed a high school course but does not lead to a degree or a diploma; instead, a report of standing will be submitted to the Board of Regents.

Infant Mortality in New York and Brooklyn.—The Public Service League of Brooklyn has issued a statement based on the reports of the health department, showing that the infant mortality in that borough is greater than in Manhattan. The number of deaths for the last week in July for infants under five years of age was 304, against 284 in New York. At the offices of the health department in Brooklyn it was stated that this discrepancy was probably due to the numerous charitable organizations interested in the care of infants and young children in Manhattan.

Pasteurization Must Safeguard the Milk Supply.—The Commissioner of Health, Dr. Lederle, has made special efforts to ensure a pure milk supply for the city, but admits that it is impossible to exercise a sufficiently rigid inspection of the 44,000 farms in seven states that send 2,000,000 quarts of milk to this city daily. Beginning with January 1, practically all milk for general use must be pasteurized with the exception of the "certified" milk which is known to be produced under exceptional circumstances, and that used only for cooking purposes.

Personal.—Dr. John T. Fitzgerald, formerly medical superintendent of Public Charities in Brooklyn, has been made general superintendent of the Public Charities Commission Hospitals.——Drs. Henry B. Minton, Brooklyn, Dr. Hubbard W.

Mitchell and Dr. Henry W. Frauenthal have sailed for Europe. ——Dr. George G. Rambaud, physician of the Pasteur Institute, who was recently injured in an automobile accident and has been seriously ill in the Vassar Hospital, Poughkeepsie, is now said to be out of danger.——Dr. and Mrs. Ernest P. Livingston sail for Europe, August 12.——Dr. Hugh S. Reed, a physician in the employ of the Department of Health, was struck by a subway train at Fourteenth Street, July 28, and suffered a fracture of the skull.

Aid for Many Charities.—The will of the late John Curley of Brooklyn makes bequests to about fifty charities, among which are: the Sisters of the Poor of St. Francis, in charge of St. Peter's Hospital, $15,000; the Hospital of the Holy Family, $5,000; St. Mary's Hospital, $5,000; St. Catherine's Hospital Association, $10,000; Seney Hospital, Brooklyn Hospital, Brooklyn Bureau of Charities and Long Island College Hospital, each receives $1,000.——The will of Smith Ely, former mayor of New York, leaves about $1,000,000 to charities. Among the charities remembered are the Fresh Air Home for Crippled Children at Sea Breeze, Coney Island, $50,000; West Side Day Nursery of the City of New York, $10,000. After all debts and legacies have been paid, the Children's Aid Society and the New York Society for Improving the Condition of the Poor are to receive $100,000 each on condition that with the sum special endowments be instituted to be known forever as the Ambrose K. Ely Memorial.

OHIO

Personal.—Dr. James J. McClellan, Columbus, who has been seriously ill with septicemia, is reported to be improving.——Dr. Asa H. Syler, Sugar Creek, is ill with typhoid fever.

Secretary of State Board Resigns.——Dr. Charles O. Probst, Columbus, secretary of the Ohio State Board of Health for twenty-five years, has resigned, to take effect September 30.

Gift to Hospital.—Dr. David J. Merriman, Painesville, has donated his medical library together with the cases which contain it to the Painesville Hospital for the use of nurses in training and others who may desire to consult it.

Cincinnati

Personal.—Dr. John D. Miller has been appointed to succeed himself as a member of the board of health.——Dr. Rufus B. Hall is reported to be seriously ill in Cleveland.

PENNSYLVANIA

Personal.—Dr. Edgar Sturge, Scranton, was thrown from his carriage in a runaway accident, August 5, and sustained serious spinal injuries.——Dr. Percy O. Hoskins, West Chester, was operated on for appendicitis in the West Chester Hospital, August 1, and is reported to be doing well.

State Insane Hospital.—Bids were opened on August 8, by the Pennsylvania Commission to erect a state hospital for the criminal insane, for the construction of new buildings known as dining room building, kitchen, bakery, laundry, power building, icehouse, reservoir, system of sewage disposal, together with equipments pertaining to the State Hospital for the Criminal Insane, at Fairview.

Department Aids Country Doctor.—The department of health of Pennsylvania is doing great work for country practitioners. It not only furnishes laboratory facilities for the diagnosis of certain morbid conditions and the detection of obscure sources of disease, but has also put at command of physicians 350 stations at which diphtheria antitoxin may be obtained, and more recently, has established sixty-seven stations at which antitetanic serum may be furnished for indigent patients. The department also supplies physicians with instructions for families detailing the necessary precautions to be exercised by those in care of patients suffering from communicable diseases.

Pure Food Prosecutions Begun.—As a result of the violation of the pure food laws of the state, Dairy and Food Commissioner Foust ordered 215 prosecutions of which 138 are for the sale of milk having a lower quantity of butter fats than the law requires, fifty-three for the sale of cream below state standards and three for the sale of skimmed milk without notice that it was skimmed. These suits will be entered in Allegheny, Armstrong, Beaver, Blair, Butler, Cambria, Center, Chester, Clinton, Dauphin, Erie, Fayette, Huntingdon, Lancaster, Lebanon, Luzerne, Lycoming, McKean, Montgomery, Montour, Northumberland, Philadelphia, Venango, Warren, Washington, Westmoreland, Wyoming and York counties. Seven suits for the sale of ice cream not in accordance with state laws, five for the sale of adulterated non-alcoholic drinks and seven for the sale of adulterated candies, catsup and sausage were ordered in western counties and two suits for the sale of butter against state laws and one for the sale of bad eggs were ordered in Philadelphia.

Philadelphia

Hospital Buys New Quarters.—The American Oncologic Hospital has purchased the large stone residence at Thirty-Third and Powelton Avenue for $40,000, and will at once occupy the property.

Personal.—Dr. John K. Mitchell and Dr. Ernest LaPlace have sailed for Europe.——Dr. William C. Hollopeter has gone to Honolulu.——Dr. William E. Lee, chief visiting surgeon at the Pennsylvania Hospital, has been taken to that institution suffering with typhoid fever.——Dr. L. Webster Fox sailed for Europe, August 3.

Inspection of Public Baths.—Dr. Joseph S. Neff, director of Public Health and Charities, recently ordered a special investigation of swimming pools by a corps of medical inspectors, with the result that many of them, including some prominent club swimming pools were condemned as unsanitary. The investigations embraced twenty-nine swimming pools, of which twenty-two were municipal baths. Ten of these were declared to be in bad condition and improvements were ordered.

To Endow Room in Jewish Hospital.—At a meeting of the officers of the Jewish Hospital Association the offer of Mr. Isaac Wolf, Jr., who stated that he had made a provision in his will for the payment to the Jewish Hospital of $10,000 to endow a room in memory of his parents and to give a donation of $500 yearly during his lifetime, provided that the room were established at once. If for any reason the annual payments of $500 should not be regularly made or if the bequest of $10,000 was not paid under the will such endowment room should cease.

Tuberculosis Pier Successful.—The day camp for consumptives, established on the Bainbridge Street Pier, is now able to care for thirty patients daily. It is open from 9 a. m. to 6 p. m. Luncheons of milk, bread and butter are served at 10 a. m. and 4 p. m. and a good dinner at 12:30. A canvas pavilion, 30 by 40 feet, open on all sides protects the patients from sun, and there are curtains which can be lowered. The two dozen cure-all chairs were loaned by the Shut-In Society, while department stores and other firms have given the furniture needed. The pier is under the care of Dr. Albert P. Francine of the State Tuberculosis Dispensary assisted by a corps of physicians.

Bequest.—By the will of Meyer Seidenbach, $4,000 is devised to charity with the provision that in the event of the death of his widow and children and issue of the latter the trust funds established for their benefit also should go to charity. The will bequeaths to the Jewish Foster Home and Orphanage, $1,000; to the Jewish Hospital Association, $1,000; to the Federation of Jewish Charities of Philadelphia, $1,000; to the German Hospital, $500, and to a Jewish Synagog, $500.

SOUTH CAROLINA

Free Typhoid Serum.—The State Board of Health announces that in addition to the immunizing treatment of rabies, smallpox vaccine and antitoxin for diphtheria, it has decided to begin the free distribution of anti-typhoid serum.

TENNESSEE

College Building Sold.—The building on Broadway, Nashville, formerly occupied by the Medical Department of the University of Tennessee and for the last two years by the Tennessee Hospital has been sold on account of the removal of the medical department of the university to Memphis.

The Pellagra Board.—The board of inspectors of pellagra appointed by the State Board of Health has been completed by the appointment of Dr. Byrd S. Rhea, Bon Air, for the middle division. The three inspectors have taken a ten days' preparatory course in Nashville before entering on their duties. They are to lecture on pellagra in the various counties, and after the lectures, are to accompany physicians in visits to pellagra cases or pellagra suspects, giving personal instruction in each case as to diagnosis, isolation, etc.

VIRGINIA

Memorial Antituberculosis League.—The Latane Antituberculosis League, Winchester, organized as a memorial to the late Dr. Samuel P. Latane, has employed Miss Anne Carson, Riverton, to take charge of its work in Winchester.

Personal.—Dr. Washington B. Sager, Woodstock, has been appointed resident physician at the Alleghany Hospital, Davis, W. Va.——Dr. Robert F. Williams, Richmond, has been selected as dean of the medical school of the state university of Oklahoma, Norman.

Elections.—The Augusta County Medical Association, whose membership includes physicians of Augusta, Bath and Highland Counties, held its annual meeting at Staunton, August 2, and the following officers were elected: president, Dr. Harry F. White, Fishersville; vice-presidents, Drs. Walter S. Whitmore, Mount Sidney; Herman Welland, Middlebrook, and Kenneth Bradford, Staunton; secretary, Dr. Alexander J. Burkeholder, Mount Sidney; treasurer, Dr. Walter F. Hartman, Swoope; censor, Dr. Marshall P. Jones, Churchville; and trustee, Dr. R. Sumpter Griffith, Basic City.——At the annual meeting of the Piedmont Medical Society, held in Charlottesville, July 30, the following officers were elected: president, Dr. George W. Stark, Overton; vice-presidents, Drs. Ernest D. Davis, Standardsville, and Harry W. Porter, Louisa; secretary, Dr. Frank G. Scott, Orange; treasurer, Dr. John T. Walker, Barboursville.

WISCONSIN

Ill and Injured.—Dr. Guy A. Grafton, Hayward, sustained a fracture of the leg and other serious injuries in an automobile accident, August 3.——Dr. William P. Salbreiter, Racine, is reported to be seriously ill with pneumonia.——Dr. Frederick J. Hamlin, Beloit, has gone to South Dakota for a two months' vacation on account of ill health.

Personal.—Dr. Glenford L. Bellis, Antigo, has been appointed a member of the advisory board of the state tuberculosis sanatorium.——Dr. Jonas R. Longley, Fond du Lac, has been appointed local physician for the Soo line.——Dr. Lewis F. Bennett, after twenty-two years' practice in Beloit, has decided to locate in Spokane, Wash. At a farewell banquet given Dr. Bennett by the medical profession and the school board of Beloit, glowing tributes were paid to Dr. Bennett for his work in the civic uplift of the city.

GENERAL NEWS

Soo Line Surgeons to Meet.—The fifth annual meeting of the Minneapolis, St. Paul and Sault Ste. Marie Railway Surgical Association will be held in the Blackstone Hotel, Chicago, October 16 and 17, under the presidency of Dr. Albert E. Halstead, Chicago.

Military Surgeons' Meeting.—The annual convention of the Association of Military Surgeons of the United States will be held in Milwaukee, September 26 to 29. The headquarters will be at the Hotel Pfister and Dr. Gilbert E. Seaman is chairman of the committee on arrangements.

Antismokers Incorporate.—An organization called the Non-Smokers' Protective League of America, having its principal office in New York City, has recently filed papers of incorporation with the secretary of this state. The object of the league will be to enforce laws, ordinances and regulations restricting smoking. Among the directors are Dr. Harvey W. Wiley of Washington, Chancellor James R. Day of Syracuse University, Dr Burt G. Wilder of Cornell University, President David Starr Jordan of Leland Stanford University, Dr. Winfield S. Hall of Northwestern University and other prominent educators.

Wall Charts on Hookworm Disease and Soil Pollution.—The United States Public Health and Marine-Hospital Service has just issued a series of nine wall charts illustrating the anatomy and life-history of hookworms, the methods of their dissemination, methods of prevention, and pictures of severely infected patients. These charts are intended for use in schools, colleges and field work. They are now being used by some of the state boards of health in the campaign for the eradication of hookworm disease. The charts are printed on heavy paper mounted on linen, with wooden hangers and are sold by the Superintendent of Documents, Government Printing Office, Washington, D. C., at $3.00 per set.

Municipal Congress.—The International Municipal Congress and Exposition is to be held at the Coliseum, Chicago, September 18 to 30, inclusive. The purpose of the congress is to discuss municipal problems. Many of the cities of the United States have already designated delegates and the most of these have included representatives from their departments of health. Discussions will be held before the general body by health officers on the "Milk Supply," and the "Advantage of a Low Death-Rate to a City." From September 28 to 30, inclusive, there will be a series of seven meetings participated in by health officers. These are for the purpose of adopting means of controlling such important activities of a city as "The Control of Contagion," "The Control of Milk and Water," "The Disposal of Sewage and Garbage," and methods of supervising those things in a city which easily become a nuisance. The plan is to have the subjects discussed in a very concrete way and then to have those in attendance go on record as in favor of certain methods of procedure, and against other methods. Many of the leading sanitarians of this country have agreed to act as leaders of discussions.

CANADA

Cocain Arrests.—The annual report of the chief of police of Montreal states that since July 1, 1910, there have been more than 150 arrests for either selling or using cocain in that city.

Council Meeting.—The Ontario Medical Council at its July meeting decided to cut out all examinations except the finals and to accept the examinations for the primary and scientific subjects of the provincial universities. The names of two physicians were struck from the register and two were readmitted, one of whom had had his license canceled sixteen years ago. Two representatives of defunct medical teaching boards who were on the staff of the medical department of the University of Toronto were refused status as members of the Council.

Personal.—Dr. Alfred Poole, house physician of the Vancouver (B. C.) General Hospital, has resigned.——Drs. H. H. Manseau, Montreal, Charles A. Hodgetts, Toronto, and Major Loren Drum, Quebec, chief sanitary officer of the Canadian Army Medical Service, have sailed for Europe.——Dr. Richard A. Reeve, Toronto, has been given an honorary degree by the University of Birmingham, England.——Dr. Harry B. Anderson, Toronto, has returned home after a several months' stay in Germany.——Dr. Andrew McPhail, Montreal, editor of the *Canadian Medical Association Journal*, who recently suffered severe injuries to the eyes, is reported to be improving.——Dr. Thomas G. Roddick, Montreal, has recovered from his recent illness.——Dr. Francis J. Shepherd, Montreal, has been reappointed dean of the medical faculty of McGill University.

LONDON LETTER

(From Our Regular Correspondent)

London, August 5, 1911.

The National Insurance Bill: Victory of the Profession

The unanimity of the profession in the face of what they regard as a great danger to their interests (described in previous letters to The Journal) has been crowned with almost complete victory in parliament, which is probably only the prelude to the complete attainment of all their demands. In the House of Commons, Sir P. Magnus, the member for London University, moved an amendment in accordance with the demand of the profession that persons with an income above $500 be excluded from obtaining medical attendance at contract rates. He pointed out that the profession was absolutely agreed on the point. Persons with incomes between $500 and $800 (the present limit of income above which the bill does not apply) should receive a money grant in lieu of medical attendance. The present system of contract attendance applied to 6,000,000 people and the bill as it stood would bring in 9,000,000 more. Experience had shown that while the contract system might be necessary in some cases it was not the best system for the cure of illness. Moreover, many doctors would be absolutely ruined by the bill as it stood and a great extension of the contract system would injure the status and character of medical practice. At present the doctor was able to combine contract with private practice, but if the contract system were to occupy his whole time the position would be intolerable. His whole time would be occupied and he would have neither leisure nor opportunity to keep abreast of the advances of science. Mr. Lloyd-George, the chancellor of the exchequer, pointed out that in many districts all medical arrangements had long been on contract terms, although in the skilled industries incomes above the proposed limit were earned. On the other hand, there were other industrial districts, such as rural ones, in which the incomes earned were below the proposed limit of $500, but the people were as well off, in consequence of lower cost of living, and the contract system did not prevail. Obviously the amendment would be of no advantage to the doctors practicing here who equally objected to the conversion of private into contract practice. A far better method was to leave the question of wage limit to the local health committee. The amendment was negative without a division. Dr. Addison, lecturer on anatomy at St. Bartholomew's Hospital, then moved an amendment authorizing the local committee to require any person whose income exceeds a limit, to be fixed by them, and to allow any other persons, in lieu of receiving medical benefit, to make their own arrangements and to receive the sum which would otherwise have been expended in providing medical benefit. The amendment had a great advantage of introducing elasticity. It was carried by a large majority. It is thus open to the profession, if they maintain their unity, to insist in each locality on whatever limit of income they prefer. This amendment has the advantage over the rigid one of $500, which was proposed at first, that where circumstances require it a still lower limit can be fixed. The two other demands of the profession—that the administration of medical benefits shall be transferred from the friendly societies to the local health committees and allowing the free choice of doctor were also carried by large majorities. The British Medical Association have decided to place the whole bill before the profession again and to convene another representative meeting to consider it after it has passed through committee in the House of Commons. Many of the friendly society officials are very angry that the control of the doctors is taken out of their hands.

The Radium Institute

The Radium Institute, which was founded at the suggestion of the late King Edward two years ago by two well-known philanthropists, Sir Ernest Cassel and Viscount Iveagh, is now compleded. Paying patients will be treated only in association with and through the introduction of their physician. At the first visit they must either be accompanied by their medical adviser or bring with them his written statement of the case, giving details of the treatment already employed. Physicians are cordially invited to be present during the treatment and to assist in it when practicable. The following fees will be charged: for first consultation at the institute, $10; for treatment when the lesion is situated on the external surface of the body with apparatus containing not more than 50 mg. of radium, $10 per sitting; when containing more than 50 mg., $20; when the lesion is situated in a cavity, e. g., larynx, uterus, urethra, etc., $25 per sitting. Necessitous patients will be admitted to free treatment if certified by their physician to be fit subjects for charity. The diagnosis of the disease from which the patient is suffering must rest with the physician introducing him and should the medical superintendent not agree with the diagnosis he will discuss the matter with the physician. Should a third opinion be considered necessary one of the honorary consulting staff will be called in in the case of a free patient. In the case of a paying patient the physician will nominate the consultant, or if he prefers it, leave this to the medical superintendent. In no case will the medical superintendent acting on behalf of the institute accept a fee for taking part in any consultation. Physicians desiring information concerning the activity of specimens of radium salts can obtain it from the chemico-physical laboratory of the institute at the following rates: measuring the amount of radium contained in specimens of radium salts, or measuring the amount of radium contained in various applicators, $10; analysis of the rays emitted from various applicators: preparation of radium applicators, circular or square disks, $10; cylindrical and special designs, $25; examination of water minerals and the like for radioactivity, $10. The institute is a handsome building situated in the west of London near Portland Place, well designed and thoroughly equipped. On the ground floor are rooms for the reception of paying and free patients and for diagnosis. The first floor is fitted up for the treatment of patients; the second floor is devoted to scientific research, and the third floor for a workshop and tools which make the institute independent of outside help in the matter of apparatus. On the ground floor there are five consulting rooms—two for paying and two for free patients and one for gynecologic examination. The medical superintendent is Mr. A. E. Hayward Pinch, F. R. C. S., who has already achieved a considerable reputation in the administration of the polyclinic of which he was for several years medical superintendent. The executive committee is composed of Sir Frederick Treves, Sir Lauder Brunton, Sir William Ramsay (the eminent scientist), Sir Malcolm Morris. The honorary consulting staff consists of a number of specialists: Mr. W. H. Clayton-Greens, Dr. Herbert French, Mr. W. H. H. Jessop, Dr. J. H. Sequeira, Dr. W. H. H. Tate, Mr. Herbert Tilley and Mr. F. Holding.

PARIS LETTER

(*From Our Regular Correspondent*)

PARIS, July 28, 1911.

Charles Nélaton

Dr. Charles Nélaton, surgeon of the hospitals and *agrégé* professor at the Faculté de médecine de Paris, has just died, aged 60, at his estate in Seine-ét-Oise, of an embolism. Charles Nélaton followed in the footsteps of his father, the celebrated surgeon of Napoleon III. The younger Nélaton had a sort of predilection for diseases of the bones and joints. He was especially fond of surmounting the difficulties of autoplastic surgery and his procedures in rhinoplasty especially have been much noticed. He published works on tuberculosis in surgical affections on benign tumors of the bones and, in collaboration with Ombredanne, two monographs devoted respectively to autoplasty in general and to rhinoplasty.

The Appearance of Cholera in France

The minister of foreign affairs has ordered the French consuls to report without delay all cases of cholera which may appear in their respective localities, so that measures may be taken with regard to travelers and merchants coming from these places. Unfortunately there is reason to doubt that these measures will be efficacious. A correspondent of the *Semaine Médicale* has observed how these precautionary measures are applied to travelers coming from and returning to Italy through Modane. Only travelers coming direct from an infected locality are detained. Therefore a traveler coming from Naples, for example, might take a ticket for Rome, and if he stops a few hours or minutes in the station without going into the city even, he might take another train direct from Rome to Paris with a new ticket and would not be stopped on the way. It is therefore not surprising that this surveillance has not been efficacious in some one of the four frontier stations and that some travelers coming from infected localities or from regions not officially declared infected have been allowed to pass without detention. Thus several cases of cholera have appeared in different quarters of Marseilles. The situation appears more serious in the department of l'Hérault of which Montpellier is the capital, where there have been a series of cases of cholera and of deaths from cholera in various localities.

Permanent Marking of Professional Criminals

Dr. Séverin Icard of Marseilles proposes a means of marking indelibly professional criminals by injecting under the skin a certain quantity of cold paraffin so as to make a small nodule. This nodule, not appreciably altering the appearance of the skin, would remain unnoticed by the uninitiated, and in case it should be discovered by accident by a third party, it might pass for a small cyst or some kind of tumor, whose judicial origin would not be suspected. The points of the skin chosen for the injection would vary according to the nature of the crime or the offenses and according to the dangerous character of the criminal. Dr. L. Sadoul writes in the *Caducée*: "This is evidently an excellent police measure which without barbarism or pain, permits a return to the old brand placed on convicts; but who will make the injection? If it is some jailer, there is reason to fear that the syringe may not always be aseptic. If it is a physician the condemned will have the guarantees of safety but the physician will lower himself to the level of an executioner. There is no discussion possible. Even if the prisoner consents the physican would still be lowering his professional dignity."

A Fake Philanthropist

For some time there have been scattered broadcast circulars headed "Oeuvre philanthropique" and couched in the following terms: "In the name of humanity, for the sake of God and men, I announce gratuitously to all how I was cured of that terrible disease tuberculosis after having been abandoned and condemned by all physicians. Let the sick take courage. Thousands of others seriously ill like me have been radically cured. It is my priestly duty to spread in the world this extraordinary discovery for the sake of God and humanity. For all information write to M. l'abbé Juillies, 26, rue Chanoinesse. Enclose a stamp for reply. Thousands of cures and testimonials! Preserve this advice with care; it will save the existence of those who are dear to you." Many have followed this advice and have written. It must be inferred that they were not satisfied with the result of their correspondence and their credulity, for the courts have been led to take a hand in the affair. The investigation shows that it was not an abbé but merely a tradesman who had taken this title the better to exploit public credulity and who was selling some kind of elixir at $1, $2 and $4 a bottle. The elixir promised to cure all kinds of diseases; tuberculosis, syphilis and baldness.

Syphilis in Prehistoric Times

The question whether syphilis existed in the old world before the fifteenth century or whether the companions of Christopher Columbus brought it from America, is not yet cleared up. In studying bones collected by the Baron de Baye in burial places on the Marne and preserved in the Museum of National Antiquities of Saint-Germainen-Laye near Paris, Dr. Paul Raymond, former *agrégé* professor at the Faculté de médecine de Montpellier, found a humerus and a cubitus belonging to different subjects which presented evident lesions of syphilis. Dr. Raymond concludes that syphilis, like tuberculosis, is as old as humanity and that America had no share in its propagation in Europe.

Personal

Dr. Antonin Imbert, major in the colonial sanitary corps, has died of the sequelæ of an anatomic puncture produced during a demonstration given in the amphitheater of the Ecole du service de santé des troupes coloniales.

The death of Dr. Charpy, professor in anatomy at the Faculté de médecine de Toulouse, is reported.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, *July 29, 1911.*

Personal

Professor Killian of Freiburg has accepted a call as the successor of Professor B. Fraenkel to the chair of laryngology at Berlin. In this way the question of which I have written has been happily solved. Our laryngologic clinic maintains its independence and receives for its head an investigator who is acknowledged as the foremost specialist in Germany. Moreover, we have at present no authority on laryngology in Berlin, so that the suffering public receives an essential advantage *from this appointment.*

Professor Fritsch of Bonn is to be succeeded by Professor *Menge of Heidelberg.*

Professor Wenckebach has accepted the call to Strasburg as director of the medical clinic.

Professor Bethe of Strasburg has at last accepted the call as professor of physiology at Kiel; his decision was delayed for many months on account of his illness as the result of an *operation for hernia.*

Professor Enderlen of Würzburg has been selected as the *successor of Professor Payr of Königsburg.*

Professor Kehrer of Bern, a son of the former gynecologist at Heidelberg, has assumed the direction of the gynecologic clinic at Dresden in place of Professor Leopold.

Jubilees

July 22, the semicentennial of the doctorate of Professor Waldeyer was celebrated at Berlin. The large participation of both natives and foreigners afforded another proof of the great esteem in which the 74-year-old scientist is held by his colleagues and the love and honor which is accorded to him by a large circle of the lay public. From many scientific bodies addresses and other marks of honor were presented. His pupils provided for a portrait bust and presented a memorial volume to which scientists of all lands have contributed. The Prussian government has awarded him the great gold medal for art and science.

July 24, Dr. Max Salomon also celebrated his golden doctor jubilee. He made himself noted, formerly, by several works in the field of medical history.

July 22, Professor Schmidt-Rimpper, the well-known ophthalmologist of Halle, celebrated his semicentennial as doctor.

July 25, the well-known pharmacologist, Professor Jaffe, of Königsburg, celebrated his 70th birthday. At the beginning of his career Jaffe was connected with the medical clinic at Königsberg as assistant of von Leyden. He published with Leyden an article on putrid sputum in which the discovery of the etiologic importance of spirilla and leptotriches for the lung process was announced. Of his pharmacologic works the chief are concerned with intermediary metabolism.

New Regulations for Hospital Construction

New provisions for the construction of hospitals, lying-in homes and infant homes were promulgated July 8, by the Prussian government, of which we will notice some of general interest. For hospitals it is required that the ground area of the building shall be at least 100 square meters (about 120 square yards) for each bed. The front wall of each hospital that is intended for the permanent accommodation of patients must be at least 20 meters (66 feet) distant from other buildings and the other walls 10. Before the windows of the patients' rooms such a free space must be provided that the enclosing walls and roofs of opposite buildings shall not extend beyond an air line drawn from the point of junction of the front wall of the building with the floor at an angle of *30 degrees with the extended floor line.* Each story which is intended for more than thirty beds must have two staircases which reach the open air. Vestibules and passages must be at least 1.8 meters (6 feet) wide, well lighted and capable of being heated and ventilated. Rooms whose floors are not at least 30 cm. (12 inches) above the adjoining earth surface must not be used for patients. Sick-rooms which are lighted from only one side must not have their windows to the north. Stairs in institutions with more than twenty beds must be fireproof and in all stories, including the roof story, must be surrounded by strong walls. They shall be without windings and be furnished with landings of equal width and shall be at least 52 inches wide. The treads must be at least 30 cm. (12 inches) wide and the risers at most 17 cm. (6.8 inches) high. The staircases must receive light and air directly from outside. The windows in rooms with several beds must have a surface equal to at least one-seventh of the floor space and in single bedrooms must have a surface of at least 2 sq. m. (2 sq. yds.). Each room for more than one patient confined to bed must have an air space of at least 30 cu. m. (cubic yard) with 7.5 sq. m. (sq. yd.) of floor space per bed and in single bedded rooms there must be an air space of at least 40 cu. m. (cubic yards) with 10 sq. m. (sq. yd.) of floor space; for children under 14, a space of 20 c. m. and a floor space of 5 sq.m. will suffice. For patients that are not confined to bed in rooms with more than one bed, and air *space of 24 cu. m. and for children under* 14 an air space of 14 cu. m. are sufficient if a sufficient day room *with at least 2 sq. m. of floor space* is provided. More than thirty beds may not be placed in one room. In every hospital there must be erected *for every ward or at least for every story a suitable day room* with its chief windows *not directed* to the north for the recreation of patients who can temporarily leave their beds; this room must have at least 2 sq. m. (sq. yd.) floor space for each patient and must in any case measure as much 20 sq. m. (sq. yd.). Besides, a recreation *yard* with a garden having as a rule a space of 10 sq. m. for each bed, must be provided. The water-closets must be sufficiently *extensive and at least* one water-closet must be provided for every fifteen beds for men and for every ten beds for women, properly furnished and separated from the ward. Special water-closets, separate from those for the patients, must be provided for the nurses.

In lying-in hospitals and infant homes and similar establishments or wards for this purpose in general hospitals there must be provided for each woman with her child, in rooms occupied by several puerperal patients, space of at least 35 cu. m. and in rooms for one woman with her child at least 45 cu. m. In rooms for infants an air space of at least 12 cu. m. must be provided for each infant's bed. For sick infants at least 20 cu. m. of air space must be allowed.

Competition in Infants

In September Berlin will have a baby show under the supervision of the matron of a welfare station. Of those entered, 150 children of mothers, selected by lot, are to be admitted to the actual competition. A classification of the children is provided for into those whose parents prefer a vegetable, a meat, or a mixed diet, and also into the children of drinkers or abstainers. The distribution of prizes will be undertaken by all the women who offer to compete, with the exclusion of those whose children are selected for the narrower competition.

Industrial Instruction for Cripples

The East Prussian agricultural trade union has lately arranged for courses for the instruction of cripples open to the members of their guild. In this way a number of invalids who were hitherto entirely unfit for work will be rendered at least partly self-supporting and social insurance and public charity will be relieved of part of their burden.

State Assistance of Midwives

In many country districts of Prussia, especially in the East, numerous births occur without professional assistance on account of the lack of midwives, which results in a considerable increase in illness and death, both of mothers and children. This lack is principally due to the insufficient opportunities for earning a living in these districts. In order to meet the most stringent need the Prussian government has appropriated 100,000 marks ($25,000) for the support of district midwives for the poorer classes.

VIENNA LETTER

(From Our Regular Correspondent)

Vienna, July 28, 1911.

Organization of Midwives in Austria.

The distribution and social position of midwives has long been unsatisfactory and has been the subject of much discussion in the public and in medical circles. Recently the "Union of Midwives" (Hebammen-Verband) of Austria sent a delegation to the minister of interior and to the minister of education, informing these authorities of the wishes and suggestions framed at the last meeting of the union. They desire a "numerusclausus" for their profession, on a scale of one midwife to 2,000 women of adult age, as well as fixed pay by the state in places where the quality of the population does not offer a likelihood of living for a midwife. This holds good chiefly for the country places and villages where at present there is no help for a parturient woman for miles around, because neither doctor nor midwife is within easy reach. Apart from that, the suggestions thrown out also provide for a tariff of fees for the women; as well as new regulations concerning the "curriculum." At present, one year of study at the gynecologic clinic is required. In future, two years should be spent in the midwives' school; the teaching to comprise the fundamental knowledge of anatomy and physiology of the pregnant and parturient female body, the necessary elements of bacteriology along with the surgical principles governing the process of childbirth. In order to enable the midwives to attain their aims, all women of the calling will be united in local and district branches to be called into existence soon, and it is intended to inquire also into the nature of diplomas and other qualifications possessed by the ladies at present.

The Heat in Austria

The most unusual weather conditions experienced in central Europe have had a very different effect in various places. Thus, in our country the sunshine during the first three weeks of July amounted to 260 hours, or fifty-five hours more than the average taken from the observations of 125 years. The rainfall was very small, only seven days instead of eighteen were classified as moist, with more than one hour's rain. At the same time, the temperature went up high, excessively high since the 19th, so that in Vienna the thermometer went up to 98 Farenheit in the shade! But in distinct opposition to the conditions prevailing during the heat wave in the United States, the humidity of the air was very low. Thus, perspiration was not interfered with, and we have had only a few cases of heatstroke up till now. The thirst of the population, however, is growing as the temperature is increasing. With us the iced drinks are not favored much, but from other reasons the daily use of ice has gone up from 100,000 bars—each weighing about 25 kilos—to 170,000 bars; at the same time the sale of milk, which generally diminishes in summer time to 600,000 liters, has gone up to 750,000 liters a day. The main reason for this is the extensive use of a favorite beverage, iced buttermilk, during the heat. As fruit is again very plentiful, this food has been used in enormous quantities, followed as usual by gastro-intestinal disturbances. Contrary to the expectations, the morbidity and mortality of infants and children has not been very high, at least up to the present. This is perhaps due to the dry heat which did not interfere with metabolism. It is a particular feature of our heat period this year that even the health resorts situated in the mountains did not escape its effects.

A Monopoly on Saccharin

The government has just presented to the parliament a bill which will make the manufacture of saccharin a monopoly of the state, like tobacco and salt. The monopoly shall comprise all artificial sweetening substances, except beet sugar or cane sugar. The sale of these articles will be licensed and the apothecaries will be the only persons who will obtain such a retail license. All articles of food containing saccharin will have to show it on the label and will thus be under special control. For persons who must not use sugar (diabetics) a special license may be granted and they will be able to obtain under it larger quantities of the substance at a reduced price, for their own use solely.

Marriages

Robert Lee Payne, Jr., M.D., Norfolk, Va., to Miss Mary Elizabeth Harmon of the University of Virginia, August 2.

Allen C. Beetham, M.D., Baltimore, to Miss Bertha Hewlett, at Merrick Long Island, N. Y., July 6.

Surgeon Lewis Morris, U. S. Navy, to Mrs. Ella Bingham Duffy of New York City, August 1.

Lisle W. Neiswender, M.D., Columbus, O., to Miss Mary Dennison, of Briggsdale, O., July 29.

George Baldwin Kroeger, M.D., to Miss Bertha Fay, both of St. Louis, July 27.

Lee E. Bransford, M.D., to Miss Blanche Royer, both of Baltimore, recently.

Deaths

Frank Pierce Foster, M.D., for more than thirty-one years editor of the *New York Medical Journal* and dean of the medical journalistic profession, died at Chadwick, N. J., August 13, from cancer of the throat, aged 69.

He was born in Concord, N. H., received his preliminary education in the public and high schools of that city, and graduated from the College of Physicians and Surgeons, New York City, in 1862. After a two years' internship in the New York hospital, he established himself in general practice in New York City where he has since resided, excepting for a short time when he served as surgeon on steamers running between New York and San Francisco, and in the fall of 1864 when for a few months he was contract surgeon in the United States Army. He engaged in general practice, but paid special attention at first to dermatology and later to obstetrics and gynecology. In 1870 he introduced the preparation and use of bovine vaccine virus into the United States under the auspices of the New York Dispensary and wrote a series of articles advocating the use of bovine as compared with humanized virus.

In January, 1880, he assumed the editorship of the *New York Medical Journal*, then a monthly published by the Appletons. Dr. Foster's energy and ability so improved the status of the journal that three years later it was made a weekly publication, and rapidly obtained its position as one of the leading medical weeklies of the United States. In the early eighties, Dr. Foster became editor and co-author of the illustrated "Encyclopedic Medical Dictionary" which bears his name and which occupied a large part of his attention for twelve years. He was also the editor of the "Reference Handbook of Practical Therapeutics" and a member of the editorial staff of the "Standard Dictionary."

Dr. Foster was a member of the American Medical Association and chairman of the Committee on Revision of Medical Nomenclature and prepared the reports presented by the committee at the sessions of 1909, 1910 and 1911. He was a member of the New York Academy of Medicine and the New York Gynecological Society, a member and once librarian of the Medical Journal Association, and secretary and president of the New York Dermatological Society.

Frank Wilfred Page, M.D. University of Vermont, Burlington, 1866; a member of the Boston Medical Library Association; from 1878 to 1880 assistant physician and superintendent of the McLane Hospital for the Insane, Somerville, Mass.; from 1897 to 1899 superintendent of the Vermont State Hospital, Waterbury; professor of nervous and mental diseases in the University of Vermont from 1898 to 1900; died at his home in Boston, August 2, aged 67.

Charles H. Brothers, M.D. University of Nashville, Tenn., 1872; a member of the Kentucky State Medical Association; formerly president of the Board of Health of Paducah; city health officer, and at various times president, secretary and treasurer of the Southwestern Kentucky Medical Association; died at his home in Paducah, August 3, from tuberculosis complicating nephritis, aged 61.

Charles Oliver Green, M.D. Bellevue Hospital Medical College, 1890; local surgeon at Hornell for the Erie Railway; captain and assistant surgeon, N. G., N. Y., assigned Third Infantry; a member of the staff of St. James (Mercy) Hospital; health officer of Hornell; was struck by an automobile while alighting from a street car, August 3, and died a few hours later from his injuries, aged 52.

Lawrence W. Hollis, M.D. University of Louisville (Ky.), 1883; formerly president of the Taylor County (Tex.) Medical Association; one of the board of examiners for the Thirty-Ninth Judicial District; proprietor of the Hollis Sanitarium. Abilene, Tex.; was struck by a falling timber during a wind storm in Abilene, July 31, and died soon after from his injuries, aged 49.

Thomas Crozier, M.D. Harvard Medical School, 1863; of Arlington, Mass.; a medical cadet during the Civil War; a member of the Massachusetts Medical Society; who was taken ill while at his summer home at Edgecomb, Boothbay Harbor, Me.; died in the Gregory Sanitarium at that place, July 25, from cerebral hemorrhage, aged 74.

John Baker Atchison, M.D. Long Island College Hospital, Brooklyn, 1867; a member of the American Medical Association; a Confederate veteran; a Montana pioneer and for the last twelve years a practitioner of Lewistown; died in St. Joseph's Hospital, Lewistown, August 2, from senile debility, aged 72.

John Beverly Warwick, M.D. Medical College of Ohio, Cincinnati, 1858; a veteran of the Civil War; for many years a member of the Hempstead Academy of Medicine, Portsmouth, Ohio; a member of the local pension examining board; died recently at his home in Lucasville, and was buried July 31, aged 77.

John Howard Crippen, M.D. Hahnemann Medical College, Philadelphia, 1872; a member of the American Medical Association, and Austin Flint-Cedar Valley Medical Society; attending physician at Presbyterian Hospital, Waterloo, Ia.; died at his home in that city, August 3, from nephritis, aged 60.

Arvid E. Osell, Medico-Chirurgical College of Kansas City, Mo., 1903; formerly assistant to the chair of clinical ophthalmology in the Medical Department of the University of Kansas; physician to the El Tigre Mining Company, near Douglas, Ariz.; died suddenly at his home, July 25, aged 43.

George John Schaller, M.D. Rush Medical College, 1881; a member of the American Medical Association; died at his home in Chicago, August 10, from the effects of a gunshot wound of the head, believed to have been self-inflicted with suicidal intent, while despondent, aged 51.

John Jacob Wuerth, M.D. College of Physicians and Surgeons, Chicago, 1898, of Chicago; a member of the American Medical Association; died at the home of his parents in Lawrence, Kan., August 3, from an accidental overdose of strychnin, aged 43.

William Richards, M.D. Long Island Hospital College, Brooklyn, 1862; University of Pennsylvania, Philadelphia, 1871; a member of the Massachusetts Medical Society; died at his home in Natick, July 27, from cerebral hemorrhage, aged 87.

James Marion Henry, M.D. College of Physicians and Surgeons, Baltimore, 1888; a member of the American Roentgen Ray Society; of Sioux City, Ia.; died at Hot Springs, S. Dak., July 26, from cancer due to *x*-ray burns, aged 51.

Lex Donald Wadley, M.D. College of Physicians and Surgeons, Little Rock, Ark., 1908; of Little Rock; a member of the American Medical Association; died in the Pulaski County Hospital, August 3, from uremia, aged 31.

Henry Albert Kirchner, M.D. Washington University, St. Louis, 1872; for twenty-five years physician to the German General Protestant Orphans' Home; died at his home in St. Louis, July 30, from nephritis, aged 61.

George Washington Fertich, M.D. Medical College of Indiana, Indianapolis, 1886; for twenty years local surgeon for the Panhandle System; died at his home in Dunkirk, Ind., August 3, from cerebral hemorrhage, aged 69.

Gregory Phelan, M.D. Cooper Medical College, San Francisco, 1880; for thirty years vice consul and deputy consul of the United States at Bordeaux, France, and Brussels, Belgium; died in the latter city, July 7.

Daniel Ayres Yarnell, M.D. Beaumont Hospital Medical College, St. Louis, 1889; died at his home in Eldon, Mo., July 29, from the effects of an accidental overdose of laudanum, aged 44.

Samuel P. Mitchell, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1875; died at his home in Mt. Etna, Ind., July 28, from the effects of an overdose of medicine, aged 64.

John W. Primm, M.D. Hahnemann Medical College, Chicago, 1878; for many years a practitioner of Woodstock, Ill.; died at his home in Pasadena, Cal., July 26, aged 60.

James Dunn, M.D. Tufts College Medical School, Boston, 1910; of Winthrop, Mass.; died at Boston City Hospital in December last from double pneumonia, aged 26.

William V. Anilosky, M.D. Medico-Chirurgical College of Philadelphia, 1907; died at his home in Lansford, Pa., July 29, from hemorrhage of the stomach, aged 27.

Milton A. Piper, M.D. Jefferson Medical College, 1871; a widely-known practitioner of Kensington, Philadelphia; died at his home in that place, July 26, aged 64.

William Cullen Bryant, M.D. New York Homeopathic Medical College, New York City, 1871; died at his home in Brooklyn, N. Y., July 22, from nephritis, aged 62.

Henley Boyd Newell, M.D. Rush Medical College, 1867; a member of the Racine County Medical Society; died at his home in Waterford, Wis., July 30, aged 66.

J. S. Gunn, M.D. University of Tennessee, Nashville, 1894; a member of the American Medical Association; died at his home in Adairville, Ky., August 1, aged 48.

George W. L. Hynds (license Tenn., 1889), a practitioner ever since the Civil War; died at his home in Hyndsver, Tenn., August 2, from heart disease, aged 74.

Edward L. Tracy, M.D. Chicago College of Medicine and Surgery, 1905; of Little Rock, Ark.; died at a sanitarium in Battle Creek, Mich., July 19, aged 37.

Jacob Bieger, M.D. Chicago Homeopathic Medical College, 1899; died at his home in Forest Park, Ill., August 6, from aortic aneurysm, aged 42.

James William Polhill, M.D. Medical College of Georgia, Augusta, 1908; died suddenly at his office in Hawkinsville, Ga., July 23, aged 37.

Louis P. Engleman, M.D. Louisville (Ky.) Medical College, 1897; was found dead in his office in La Fayette, Ind., August 7, aged 40.

Miscellany

Custody of Feeble-Minded.—Neither the prison nor the asylum is the right place for feeble-minded criminals, says G. A. Auden (*Jour. Crim. Law and Criminology*). There is no place for their custodial care in our present scheme of social polity, and we are driven to the strange conclusion that the best chance for the individual and for the society at large is, under existing circumstances, the commission of some serious crime, such as murder or arson, which will remove him for a lengthy period from further opportunities for antisocial action. By the removal from our penal establishments of the admittedly feeble-minded prisoners (on whom punishment and prison discipline are recognized as having no deterrent effect), the opportunities for greater specialization and classification of the same prisoners by the Borstal system, and by the recent regulations for the provision of humanizing influences, will be greatly increased. It is evident that an indeterminate sentence with statutory power to transfer to some form of institution which shall be substituted for the prison, affords the only satisfactory solution to the question.

Campaign Against Malaria.—A very effective campaign against malaria is reported by R. Ross in his book on "The Prevention of Malaria" as having taken place in Ismailia, a town founded by M. de Lesseps as headquarters of the Suez Canal Company. Since 1877, this town of 10,000 has been the scene of annual epidemics, the number of cases culminating in 1902, with more than 2,500, or 25 per cent. of the population! In 1902 a mosquito brigade was organized and the work directed chiefly toward the extermination of the mosquitoes, by draining a marsh near the town, filling up holes, visiting every house once a week and treating the cesspools with petroleum, in order to kill the mosquito larvæ, clearing all irrigation channels of reeds, so the water could flow swiftly, and by imposing penalties on the inhabitants if they did not cooperate in certain ways, the campaign was carried out to a magnificent success. While the number of cases annually during the years from 1885 to 1902 was seldom below 2,000, the years following the campaign showed the following reduction: 300 cases reported in 1903; 90 in 1904; 37 in 1905 and since then not one case has occurred! This campaign cost the town of Ismailia a trifle of $10,000 for the first year and $5,000 for the subsequent years. In the crusades against the diseases which swell the death-rate of the United States—diphtheria, scarlet fever and tuberculosis, to mention only the principal groups—the social-economic character of these problems has repeatedly been pointed out, but it has very often been difficult to convince taxpayers that preventive medicine is a paying proposition in the end. The report referred to above makes the problems a matter of simple bookkeeping; in 1902 the community of Ismailia transferred from the assets to the expense account the sum of $10,000 (or $4 per case of malaria) and the next year this community cleared a profit of 2,200 human lives redeemed from the disease. Does this look like a "business proposition" to our American taxpayer? Of course, it all depends on our standards of valuation!

The Human Air Sterilizer.—Every additional person present in the operating room is one more purifying machine for its air; is yet another means of lessening the possibility of germs from the air falling on the open wound in serious numbers as to the maintenance of surgical asepsis. The inhaled air, with its myriad impurities, is steadily filtered, as it were, and deprived of them during its passage from the nostrils to the pulmonary air-cells. Within the nose are the moist and sticky hairs; within a portion of the larynx, all of the trachea. and the bronchi and bronchioles are the cilia, active in our defense, first catching our little enemies and then (the cilia) continually lashing upward, carrying them away from our lungs the region of danger. Of course, additional persons breathing means just so much more carbon dioxid present in that room, also various more or less poisoned animal effluvia excreted by the breath. Poisons of this kind do not, however, affect the wound adversely regarding its asepsis. Microbes alone do this, and it is a well-known fact that, however dusty may be the air inhaled, when exhaled it is found to be practically sterile. In a well-kept operating room just prior to operation the floor is mopped with some antiseptic solution. Otherwise, particularly in dusty seasons and in dirty towns, each pair of shuffling or applauding feet may cause more trouble than that person's respiratory sterilizing plant can quell.—Dawbarn in *Medical Record.*

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

MAYR'S WONDERFUL STOMACH REMEDY

Another Fake Gall-Stone Remedy

The fake "gall-stone trick" and "tapeworm trick" have long been worked by itinerant medical swindlers. As every physician knows, the administration of large doses of some bland oil, such as olive oil, especially when followed by a saline cathartic, results in the passage of a number of greenish concretions from the bowels. The victim is made to believe that these concretions are gall-stones; and he feels that he is getting his money's worth in proportion to the number of these "stones" that are passed.

This method of defrauding the public is now being worked by "patent medicine" venders as well as by traveling fakers. In The Journal, Sept. 24, 1910, one of the most widely advertised of these fake gall-stone cures—"Fruitola"—was discussed. A number of inquiries have been received regarding the composition of another preparation of the same type, "Mayr's Wonderful Stomach Remedy," made by George H. Mayr, a Chicago druggist. One correspondent submitted a number of pseudogall-stones passed by one of his patients who had taken Mayr's nostrum. With the specimen the physician sent the following letter:

> "The accompanying specimen was brought to me by a patient whom I have been treating for membranous colitis. One of her symptoms is pain in the left side of the abdomen. There have been no attacks of biliary colic nor has the physical examination afforded any data on which to base such a diagnosis. On the advice of a friend the patient had taken 'Mayr's Wonderful Stomach Remedy,' which appears to be similar to 'Fruitola' recently exposed by you. I have found on a superficial examination that the masses which closely resemble gall-stones consist of a soap, part of which is insoluble. I would like to know whether the base of the insoluble portion of the soap consists largely of magnesia. If so, is it probable that this base is furnished by the saline cathartic given after the remedy or is a sufficient amount of earthy base excreted by the intestine to cause the formation of so large an amount of these pseudocalculi?"

To be able to answer this question intelligently, the Association's chemists analyzed not only the nostrum, but also the "gall-stones." The laboratory report follows:

LABORATORY REPORT

"Mayr's Wonderful Stomach Remedy" consists of a bottle of oil and two powders contained in a red carton on which appears the following:

> "Mayr's Wonderful Stomach Remedy for Stomach Troubles, Indigestion, Gases in the Stomach and Intestines, Dizziness and Fainting Spells, Colic Attacks, Torpid Liver, Constipation, Gastritis, Yellow Jaundice, Appendicitis, Gallstones, etc.

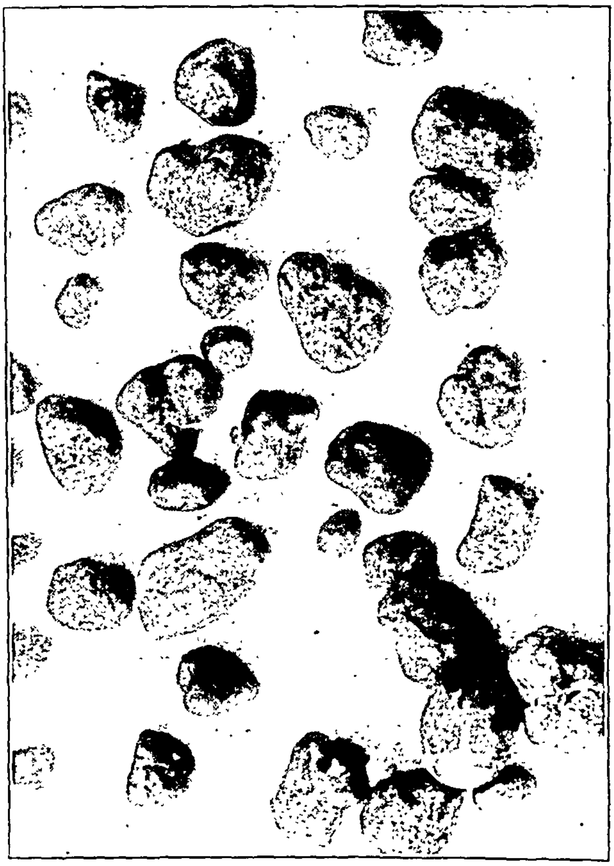


Fig. 1.—Photographic reproduction (actual size) of some of the supposed gall-stones passed by a victim who had taken Mayr's Wonderful Stomach Remedy. Anybody can perform the same trick by drinking a pint of olive oil and following it up with a seidlitz powder.

> "The above ailments are mainly caused by the clogging of the intestinal tract with poisonous accretions—which are caused by a catarrhal condition of the gall-bladder and duct, liver, stomach and intestinal tract—backing up poisonous fluids into the stomach, and otherwise deranging the digestive system.
>
> "This remedy painlessly removes these accretions without surgical operation, takes out inflammation from the entire intestinal tract and renders the same antiseptic."

A pamphlet comes with the bottle consisting chiefly of that sheet anchor of the patent medicine faker—testimonials. Of course, fraudulent claims are made.

> "Price $1.00 per bottle; worth $100.00."
>
> "A positive remedy for appendicitis."
>
> "It is composed of nothing but strictly pure food vegetable ingredients."
>
> "Unsurpassed for liver complaint."

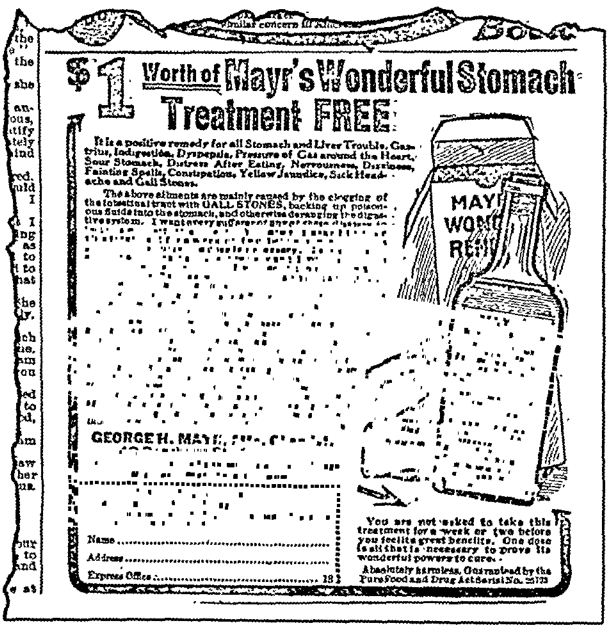
> "Those who believe that they have gallstones we implore you—*Don't submit to a dangerous surgical operation.* . . . The full course of Mayr's Wonderful Stomach Remedy not only painlessly removes this accretion, but allays the inflamed or catarrhal condition that causes them . . ."

The instructions for taking this nostrum directed the patient to take one powder at 3 o'clock in the afternoon; at bedtime the entire contents of the bottle (about a half-pint) was to be taken at one dose. The next morning the second powder was to be taken. The patient was told:

> "When the bowels operate use a vessel and note the poisonous secretions removed by this remedy, in some cases dark green or yellow lumps varying in size from a fine bead to an olive—in severe cases even larger. In other cases quantities of thick tenacious slime or mucous [*sic*]. These accumulations are weakening and poisonous."

The bottle contained about six ounces of a bland yellow oil, which from the results of analysis[1] appeared to be olive oil. The powders, each of which weighed about one ounce, appeared to be ordinary Rochelle salts one disguised by the addition of about 6 per cent. compound licorice powder and the other by the addition of about 4 per cent. powdered licorice root.

From the composition of the nostrum, as determined by analysis, it was expected that the concretions, which the physician had submitted for examination would be found to consist of a sodium soap formed in the intestinal canal by the action of the alkaline fluids on the fatty oil. As no magnesium was found in the preparation, the correspondent's suggestion that the "gall-stones" might be a magnesium soap did not appear plausible. Nevertheless it was thought worth while to demonstrate in a general way the composition of these masses.



$1 Worth of Mayr's Wonderful Stomach Treatment FREE

It is a positive remedy for all Stomach and Liver Trouble, Gastritis, Indigestion, Dyspepsia, Pressure of Gas around the Heart, Sour Stomach, Distress After Eating, Nervousness, Dizziness, Fainting Spells, Constipation, Yellow Jaundice, Sick Headache and Gall Stones.

The above ailments are mainly caused by the clogging of the intestinal tract with GALL STONES, backing up poisonous fluids into the stomach, and otherwise deranging the digestive system. I want every sufferer of

GEORGE H. MAYR

Name ....

Address ....

Express Office 18

You are not asked to take this treatment for a week or two before you feel its great benefits. One dose is all that is necessary to prove its wonderful powers to cure.

Absolutely harmless. Guaranteed by the Pure Food and Drug Act Serial No. 2133

Fig. 2.—A reduced photographic reproduction of a typical advertisement of this fake gall-stone cure. From *Happy Hours*.

The so-called gall-stones, weighing in the aggregate about 21 grams (315 grains) were grayish-green and of the size shown in the illustration (Fig. 1). When received they had the consistency of soft wax, but on standing in the laboratory for several days the material separated into a dark oily portion and an amorphous gray part. Analysis[1] demonstrated the presence of both free and combined fatty acids as well as of considerable sodium and some potassium. Lack of material made it impossible to determine whether the combined fatty acids existed in combination with sodium or potassium or in the original condition as oil; for the same reason, it was impossible to determine in what form the sodium and potassium were present. As the amount of sodium found was in itself more than sufficient to account for all the combined fatty acids, it is probable that the masses consisted essentially of free fatty acids and soap (sodium salt of fatty acids).

In short, the so-called gall-stones are principally a mixture of fatty acids and soaps produced by the action of the alkaline intestinal fluids on the large amount of oil taken.

Correspondence

Purgation in Delirium Tremens

To the Editor:—After reading the article in the Therapeutics Department on "Delirium Tremens" in The Journal, August 5, I was struck by the omission of any reference to purgation. In the treatment of this condition, the incitement of an early and active purgation has seemed to me in the great majority of the cases the most important factor at our command. The thickly coated tongue, foul breath and unhealthy condition of the skin of many of these patients indicate that to the toxicity of the alcohol there is added the autotoxicity of faulty elimination. There is commonly a history of constipation and at times of inactive kidneys. An initial dose of from 3 to 5 grains of calomel followed in six hours by a saline has seemed to me so satisfactory that it has become my routine practice and is rarely contra-indicated. In severer cases I give from 3 to 5 compound cathartic pills and a cleansing enema on admission to the hospital and follow this with a saline. There are cases in which I employ immediate full doses of Epsom salts or even small doses of croton oil after 1/6 gr. of morphin hypodermically to obviate vomiting. Such measures, I believe, render the frequently required hypnotics less dangerous and more effectual. Such thorough elimination seems to cut short the course and severity of any delirium present and often to prevent the occurrence of a delirium which appears imminent. Further, the use of these hydragogues relieves congestions of cerebrum and other organs and may thereby avoid the incidence of an always dangerous edema of meninges or lungs. I believe the above an important addition to the very helpful measures outlined in The Journal for the treatment of delirium tremens.

C. C. Wholey, Pittsburg.

Queries and Minor Notes

Anonymous Communications will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SERIAL DILUTION OF KOCH'S TUBERCULIN FOR THERAPEUTIC USE

To the Editor:—Please publish the method of serial dilution of Koch's new tuberculin for therapeutic administration; also, some references in the literature. J. J. Zaun, St. Paul, Minn.

Answer.—The dilution should be made with normal salt solution plus 20 per cent. of glycerin.

The original solution constitutes solution No. 0. If 0.1 c.c. of this solution be mixed with 0.9 c.c. of the diluent we get solution No. I; 0.1 c.c. of solution No. I mixed with 0.9 c.c. of diluent gives solution No. II; 0.1 c.c. of solution No. II mixed with 0.9 c.c. of the diluent gives solution No. III. The dose to be administered at first should be so small as not to produce a reaction. It should be gradually increased by using fractions of a cubic centimeter of the solution until 1 c.c. is given at a dose. The transition is then made to the next stronger solution, 0.1 c.c. of which is equivalent to 1 c.c. of the weaker. The increase of dose by advancing by 0.1 c.c. of this stronger solution is usually too abrupt. This is avoided by giving 0.5 c.c. of the weaker solution with 0.1 of the stronger, the dose thus given amounting to 0.15 c.c. of the stronger solution. The doses are thus gradually increased until 1 c.c. of solution No. II is used when the transition is made to No. I and finally to No. 0 in the manner described. It is not advisable to make up more than 1 c.c. of tuberculin solution at one time.

The literature of tuberculin therapy is so extensive that it is not practicable to publish references to it.

SODIUM CHLORID IN EPILEPSY, GASTRIC ULCER, ETC.

To the Editor:—Please give me references to articles on the following topics:

1. The effect of the ingestion of sodium chlorid in epileptics.
2. The effect of the ingestion of sodium chlorid in hyperchlorhydria and ulcer of the stomach.
3. The effect of the ingestion of sodium chlorid in dropsy of renal or cardiac origin
4. The effect of the ingestion of sodium chlorid as causing chronic interstitial nephritis, and incidentally arteriosclerosis, by increasing blood-pressure and inhibiting osmosis through the renal capillaries.

T. I. O'Drain, Philadelphia.

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[1] The details of analysis will be published in the annual report of the chemical laboratory.

ANSWER.—1. Ceconi, A.: Salt and Uremia, *München. med. Wchnschr.*, March 9, 1909; abstr. in THE JOURNAL, April 17, 1909, p. 1301.

Long, E.: Prolonged Treatment of Epilepsy with Bromid and Deprivation of Salt, *Rev. de méd.*, October, 1909; abstr. in THE JOURNAL, Dec. 11, 1909, p. 2041.

Ulrich, A.: Salt as Antidote in Bromid Intoxication, *München. med. Wchnschr.*, May 31, 1910.

Le Play, A.: Salt in Treatment of Eclampsia, *Semaine méd.*, Aug. 3, 1910; abstr. in THE JOURNAL, Sept. 3, 1910, p. 893.

2. Higgins, H.: Blood-Pressure, Chlorin Retention and Dechlorination, Hyperacidity and Variations in the Starch Ration, *Lancet*, London, April 18, 1908.

Martinet, A.: Salt and the Gastric Secretion, *Presse méd.*, July 1, 1908; abstr. in THE JOURNAL, Aug. 8, 1908, p. 537.

Floresco, N.: Action of Salt in Gastric Digestive Disturbances, *Presse méd.*, Jan. 23, 1909; abstr. in THE JOURNAL, March 6, 1909, p. 804.

Benczur, G. v.: Influence on Gastric Secretion of Salt Solutions Introduced Into the Intestines, *München. méd. Wchnschr.*, May 11, 1909.

3. Gruner, O.: Influence of Salt on Dropsy in Children, *Jahrb. f. Kinderh.*, lxiv, No. 5; abstr. in THE JOURNAL, Jan. 26, 1907, p. 374.

Peabody, G. L.: Salt-Free Diet in Chronic Parenchymatous Nephritis, *Med. Rec.*, March 9, 1907; abstr. in THE JOURNAL, March 23, 1907, p. 1062.

Hadfield, C. F.: Treatment of Dropsy by Deprivation of Salt, *Practitioner*, June, 1907.

Martinet, A.: Indications and Restrictions for Deprivation of Salt in Chronic Nephritis, *Presse méd.*, Dec. 11, 1907.

Birnbaum, R.: Elimination of Chlorids During Pregnancy, Especially in the Dropsy of Pregnancy and Albuminuria, *Arch. f. Gynäk.*, 1908, lxxxiii, No. 3.

Cramer, H.: Deprivation of Salt in Pregnancy Dropsy, *München. med. Wchnschr.*, Dec. 31, 1907; abstr. in THE JOURNAL, Feb. 1, 1908, p. 412.

[illegible] Elimination of Chlorids in Pregnancy, Espe- [illegible] Nephritis, *Arch. f. Gynäk.*, lxxiv, No. 3; abstr. [illegible] 9, 1908, p. 1372.

Gluzinski, L. A.: Elimination of Chlorids in Urine and Kidney Affections, *Wien. klin. Wchnschr.*, April 2, 1908; abstr. in THE JOURNAL, May 16, 1908, p. 1660.

Bittorf, A.: Pathology and Metabolism of Water and Salt, *Deutsch. Arch. f. klin. Med.*, xciv, Nos. 1-2; abstr. in THE JOURNAL, Oct. 31, 1908, p. 1559.

Jackson, H. C., and Elting, A. W.: Salt Elimination in the Urine of an Individual with General Edema of Obscure Origin, Followed by Cure, *Arch. Int. Med.*, October, 1908.

Mendel, F.: Salt-Poor Diet as a Systematic Method of Treatment, *München. med. Wchnschr.*, March 9, 1909; abstr. in THE JOURNAL, April 17, 1909, p. 1301.

Fleischer, M. S., and Loeb, L.: Influence of Addition of Adrenalin to Solutions of Sodium Chlorid and Calcium Chlorid on Production of Urine, Ascites and Intestinal Fluid, *Jour. Exper. Med.*, May, 1909; abstr. in THE JOURNAL, June 12, 1909, p. 1956.

Fleischer, M. S., and Loeb, L.: Influence of Myocarditic Lesions on Production of Ascites, Intestinal Fluid and Urine in Animals Infused with Solutions of Sodium Chlorid and Calcium Chlorid, *Jour. Exper. Med.*, May, 1909; abstr. in THE JOURNAL, June 12, 1909, p. 1956.

Jaeger, O.: Restriction of Salt in Urinary Disturbances During Pregnancy, *Deutsch. med. Wchnschr.*, Oct. 14, 1909; abstr. in THE JOURNAL, Nov. 20, 1909, p. 1784.

Manshardt, C.: Elimination of Salt in Nephritis and Edema of Renal Origin, *Arch. f. Kinderh.*, lii, Nos. 1-3; abstr. in THE JOURNAL, Jan. 22, 1910, p. 327.

Alwens, W.: Salt-Poor Diet in Treatment of Tuberculous Ascites, *Therap. d. Gegenw.*, March, 1910; abstr. in THE JOURNAL, April 9, 1910, p. 1243.

Strauss, H.: Importance of Salt for Metabolism, *Berl. klin. Wchnschr.*, Dec. 12, 1910.

Leva, J.: The Salt-Poor Diet, *Med. Klinik*, May 15, 1910, p. 93; abstr. in THE JOURNAL, July 2, 1910, p. 93.

4. We have no articles whose titles indicate that they treat of this subject.

EPIDEMIC PNEUMONIA—A QUERY FROM INDIA

To the Editor:—As a regular reader and admirer of THE JOURNAL, I am particularly struck with the wealth of references which you and your contributors always muster. I shall therefore be most grateful if you will answer, or cause to be answered, the query below; up to [illegible] my search for literature bearing on the subject has been most disappointing. Please give me references to literature on epidemic pneumonia, especially as regards its etiology.

C. B., Meerut, U. P., N. India.

ANSWER.—Pneumonia occurs in epidemic form under various circumstances. The following factors may be noted as contributing to its epidemic character: 1. Unusual virulence of the pneumococcus. 2. Occurrence in connection with another disease of epidemic character, such as influenza, plague, etc. 3. Marked opportunities for conveyance, as in institutions like jails, asylums, etc. 4. Circumstances that lower resistance of a number of people. It is impossible from this distance to say what are the special circumstances which make possible the epidemic of which our correspondent writes, but it is to be hoped that a thorough investigation will be made resulting in a valuable contribution to medical science.

The following references to literature on epidemic pneumonia may be consulted:

Spaet, F.: Epidemic Pneumonia, *München. med. Wchnschr.*, l, No. 39 and 40; abstr. in THE JOURNAL, Nov. 14, 1903, p. 1238.

Southgate, L.: Prevalence and Mortality of Epidemic Pneumonia, *Virginia Med. Semi-Month.*, June 10, 1904.

Fink, G. H.: Epidemic of Infectious Pneumonia, Plague, and Influenza in India, *Jour. Trop. Med.*, Oct. 16, 1905.

De Blasi, A.: Epidemic Pneumonia, *Gazz. d. osp.*, xxvii, No. 36; abstr. in THE JOURNAL, Aug. 25, 1906, p. 644.

Woldert, A.: Epidemic of Grippe Followed by Pneumonia, *Med. Rec.*, Jan. 5, 1907; abstr. in THE JOURNAL, Jan. 19, 1907, p. 261.

Recchi, G.: Epidemic Pneumonia, *Gazz. d. osp.*, xxviii, Nos. 12-18; abstr. in THE JOURNAL, July 6, 1907, p. 95.

Fabyan, M.: Epidemic Pneumonia, *Bull. Johns Hopkins Hosp.*, November, 1907; abstr. in THE JOURNAL, Dec. 21, 1907, p. 2121.

Oreste, T.: Epidemic Pneumonia, *Gazz. d. osp.*, Oct. 11, 1908.

Shuter, R. E.: Epidemic Pneumonia, *Australas. Med. Gaz.*, March, 1909.

Mann, S.: Epidemic Pneumonia, *Virginia Med. Semi-Month.*, Aug. 13, 1909; abstr. in THE JOURNAL, Sept. 4, 1909, p. 815.

Powell, A. J.: Pneumonia, *Dublin Jour. Med. Sc.*, March, 1911; abstr. in THE JOURNAL, April 1, 1911, p. 1008.

Rondet, H.: Analogies between Epidemic Pneumonia in Institutions and Pneumonic Plague, *Lyon Med.*, April 9, 1911; abstr. in THE JOURNAL, June 24, 1911, p. 1908.

STRONGYLOIDES STERCORALIS

To the Editor:—Please outline for me a satisfactory treatment for an enteritis resulting from an infection from *Strongyloides stercoralis*. Thymol has been tried in various methods for a considerable length of time without appreciable results.

F. H. STIBBENS, U. S. Navy, San Francisco.

ANSWER.—The results obtained in the treatment of infection by *Strongyloides stercoralis* have been unsatisfactory for the reason that the parasites burrow into the mucous membrane of the intestines and thus render it difficult for a drug to reach them. Thymol has been much used, but, while it seems to be as efficient as any drug, it is often of little or no value. In case of failure with thymol, aspidium (male fern) might be used. The administration of glycerin has been recommended by Preti, the patient receiving 50 gm. (1⅔ oz.) of pure glycerin by the mouth and 30 gm. (1 oz.) by the rectum, two hours later. After two days, the procedure is repeated.

STRANGULATED HERNIA WITHOUT VOMITING

To the Editor:—In THE JOURNAL, June 24, 1911, page 1882, Dr. Judd reports a case of strangulated hernia without vomiting. I note, however, that his patient was a Chinaman. During my service in China I operated on a man in Peking for a left inguinal strangulated hernia; the tumor was about the size of a quart jar and had been strangulated between twenty-four and thirty hours. This man had not vomited at any time nor had his bowels moved since the strangulation. Operation and recovery were uncomplicated. I saw about two such cases among the Chinese, but have never seen one case in an American in which vomiting did not occur.

This recalls a case I had in Peking. A man, aged 30, came to the hospital for relief. The one thing he needed was to have his stomach unloaded. I gave him 20 grains of zinc sulphate. He lighted his pipe and began to smoke. There were no results. I then gave him, hypodermically, 1/10 grain of apomorphin. He continued to smoke. I tried several vaunted emetics on him. He retained them with complacency. Finally, I washed out his stomach. It needed it badly.

JOHN INGLIS, Denver.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Aug. 5, 1911.

Baily, Howard H., captain, detailed for service assigned Major C. R. Reynolds, Medical Corps, as inspector and inspector Ambulance Company, D. C. Militia, Frederick, Md., Aug. 18-27, 1911.

Boehs, Charles J., M.R.C., ordered to Fort Porter, N. Y., for temporary duty.

Fisher, Henry C., lieut.-col., left Columbus Barracks, Ohio, en route with recruits to Fort McDowell, Cal.

The following-named officers will proceed at the proper time to the camp of organized militia for duty as inspector instructors of militia and on completion of this duty will return to proper stations.

Wilcox, Charles, lieut.-col., is ordered to Springfield, Ill., August 12 to September 2.

Fuller, Leigh A., major, is ordered to Nevada, Missouri, August 20-27, to Ottumwa, Iowa, August 28 to September 6.

Skinner, George A., major, is ordered to camp near Morristown, Colo., September 12-16.

Van Pool, Gideon McD., major, is ordered to Dixon, Ill., August 12-26.

Van Dusen, James W., major, is ordered to Fort Riley, Kansas, August 7-16.

Grissinger, Jay W., captain, is ordered to Des Moines, Iowa, July 20-29, to Vinton, Iowa, August 7-16, and to Shenandoah, Iowa, August 21-30.

Blanchard, Robert M., captain, is ordered to Sparta, Wis., September 1-30.

Jones, Percy L., captain, is ordered to Wheatland, Wyo., August 13-21.

Owen, Leartus J., captain, is ordered to Elgin, Ill., July 29 to August 26.

Williamson, Llewellyn P., first lieut., is ordered to Jimmie Gulch, Colorado, September 19-23.

Clarke, Howard, first lieut., is ordered to camp near Omaha, Neb., September 27 to October 6.

Buck, Carroll D., major, is granted leave of absence for one month to take effect about August 15.

Norman, Seaton, first lieut., is granted leave of absence for one month and twenty days, to take effect on his relief from duty Fort Leavenworth, Kan.

Halliday, Charles H., M.R.C., is granted leave of absence for two months.

Williamson, Llewellyn P., first lieut., is ordered to Camp Perry, Ohio, to report to executive officer of National Matches for special duty August 12-30, and on completion to return to proper station.

Poust, Luther R., M.R.C., is assigned to permanent duty at Fort Du Pont, Del.

Chilton, Frank N., lieut., left San Antonio, Texas, with Third Field Artillery, en route to Fort Myer, Va.

Darnall, Carl R., major, left Washington, D. C., on one month and ten days' leave.

Dickinson, C. F., M.R.C., left Fort Duchesne, Utah, with troops on practice march.

Walkup, Joseph O., lieut., left San Antonio, Texas, en route to Army General Hospital, Fort Bayard, N. Mex.

Lake, George B., lieut., reported for duty at Fort Sheridan, Ill.

Etter, Harry B., lieut., reported at Camp Fort Bliss, Texas, from duty in field Novia, N. Mex.

Van Kirk, Harry H., M.R.C., is ordered to report to the president of the Army Medical School for duty as a student.

Moncriel, William H., captain, ordered to proceed from Fort Leavenworth to Fort Sheridan, Ill., for duty with troops from latter post at encampment at Port Huron, Mich.

Flynn, Thomas J., lieut., ordered to proceed from Fort Snelling to Fort Brady, Mich., for duty with troops from latter post at Camp Perry, Ohio.

Ingalls, Raymond E., dental surgeon, now at Fort Apache, Arizona, will proceed to Whipple Barracks, Arizona, for temporary duty.

Miller, Edgar W., captain, is granted fourteen days' leave of absence.

Leary, Thomas J., first lieut., is granted leave of absence for three months on his arrival in the United States.

Smith, Allen M., lieut.-col., is relieved from duty at Fort Sam Houston, Texas, when no longer needed at Base Hospital, and will proceed to Fort Snelling, Minn., for duty.

Ragan, Charles A., major, promoted to, with rank from July 14, 1911.

Medical Corps, U. S. Navy

Changes for the week ended Aug. 5, 1911.

Nash, F. S., medical inspector, orders of July 27 revoked.

Bishop, L. W., surgeon, commissioned surgeon from Aug. 24, 1910.

Strine, H. F., surgeon, commissioned surgeon from June 2, 1911.

Elliott, M. S., surgeon, detached from the Naval Medical School, Washington, D. C., and ordered to duty in connection with the *Utah* and to duty on board that vessel when placed in commission.

Huff, E. P., P. A. surgeon, commissioned P. A. surgeon from July 12, 1910.

Schmidt, L. M., P. A. surgeon, commissioned P. A. surgeon from December 28, 1910.

McDowell, R. W., P. A. surgeon, commissioned P. A. surgeon from May 18, 1911.

Whiteside, L. C., and Thomas, G. C., P. A. surgeons, commissioned P. A. surgeons from June 15, 1911.

Brown, E. W., asst.-surg., ordered to duty at Quincy, Mass., in connection with submarines.

Traynor, J. P., surgeon, commissioned surgeon from July 11, 1911.

Gill, J. E., P. A. surgeon, detached from the navy recruiting station, Cleveland, Ohio, and ordered to the *Wabash*.

Parham, J. C., asst.-surg., commissioned asst.-surg. from July 7, 1911.

Shepard, G. W., asst.-surg., ordered to the navy recruiting station, Cleveland, Ohio.

Nohle, H. D., asst.-surg., detached from the *Villalobos* and ordered home to wait orders.

Ledbetter, R. E., surgeon, detached from the bureau of medicine and surgery and ordered to the naval hospital, Washington, D. C.

Dunn, H. A., surgeon, detached from the naval hospital, Washington, D. C., and ordered to duty in connection with fitting out the *Florida* and to duty on bo[illegible]

Rhodes, G. C., P. A. surgeon [illegible] al hospital, Port Royal, S. C., and ordered [illegible]

Bunker, C. W. O., P. A. surgeon, detached from the naval hospital, Mare Island, Cal., and ordered to the navy recruiting station, Los Angeles, Cal.

Hoyt, R. E., P. A. surgeon, detached from the naval hospital, Mare Island, Cal., and ordered to the navy yard, Mare Island, Cal.

Jones, E. L., P. A. surgeon, detached from the navy recruiting station, Dallas, Texas, and ordered to duty on the Asiatic station.

Brown, H. L., P. A. s[illegible] avy recruiting station, Los Angeles, Cal [illegible] month [illegible]

Bacon, S., asst.-surg., [illegible] and ordered to command of the nava[illegible]

Riddick, W. J., asst.-s[illegible] *Carolina* and ordered to the *Wheeling*.

Boland, M., asst.-surg., detached from the naval hospital, Philadelphia, Pa., and ordered to the navy recruiting station, Dallas, Texas.

Sanborn, C. F., acting asst.-surg., ordered to the marine recruiting station, Denver, Colo.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POSTGRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

THE EVILS OF THE CONTRACT-SYSTEM

Report of the Committee Appointed by the Erie County Medical Society to Investigate Unethical Contract-Practice

(Presented at Regular Meeting, held at Buffalo, N. Y., June 19, 1911)

The committee appointed to investigate contract-work wishes to report the result of its investigation up to date, and the remedy which it deemed proper that this society should adopt in order to eradicate this evil. We found it to be so widespread as to necessitate careful and close analysis, making it impossible for the committee to hand in a complete report at this meeting. From the data which came under our observation, we estimate conservatively that at least 150,000 people in this city alone are securing professional services under unethical contracts. I say that our work is incomplete, made so by the magnitude of the evil and the length of time at our disposal in which to cover it. But in justice to this society, we cannot offer any report without giving a specimen of the despicable, penny-contracts held by many of the physicians of Buffalo. The following section relative to the duties of the physician, taken from the by-laws of an organization known as the Fraternal Order of Eagles, is self-explanatory.

> SECTION 1. It shall be the duty of the Aerie physician to attend, prescribe for, and perform such surgical work as may be necessary, on all members of the aerie in good standing and their respective families, also all visiting members and their families without extra charge, except in cases of confinement and primary venereal or chronic diseases, or disabilities existing at the time the member made application for membership.

There are two other organizations which offer contracts similar to the above that came under our notice. These organizations are known as the Loyal Order of Moose and the Fraternal Order of Orioles. All these organizations exist throughout the country. We found that there are a number of other fraternal insurance organizations which offer contracts of a like nature operating in this city. Among these are the American Order of Foresters, the Order of Red Men, the Maccabees and various other societies with peculiar appellations. We found that certain liability insurance companies have physicians under contract to care for their policy-holders in case of injury. These physicians are paid a miserable pittance, primarily, to cooperate with the insurance companies against the poor unfortunate who unknowingly gets into the web which the greedy, cunning, and malicious spider has so craftily and slyly woven around him. This insectivorous professional cooperates with the liability insurance company at the expense of his innocent and trusting patient to prevent liability. This, in my opinion, is an offense which should be punishable by law.

We found that a number of the large corporations of this city have fostered a movement of their employees to form associations which are supported by regular weekly assessments, primarily for their own benefit, and secondarily for the benefit of their employees. The employee is the actual supporter of this association while the employer receives the greater part of the benefit. By this arrangement the employer undergoes no inconvenience. The association supports itself: It hires a physician not only to care for its members when injured while at work, but also arranges to have the physician care for any of them for any physical disturbance which may arise during the time of the contract. In some cases they have hired the physician at a regular monthly salary to care not only for themselves, but for their families as well. They have had no difficulty in securing the services of a physician to engage in this admirable, lofty, and sublime work. Of course, the corporation sees to it that one friendly to its interests secures the position. It is absolutely necessary for the corporation to secure the services of an "honorable man" to perform the duties of this high office. He must work for the interest of the corporation and against the interests of the employees. Whenever there is an injury to any of the employees, the actual supporters of the physician, he must have the welfare of the corporation at heart, and do his best to prevent litigation. What a fine clock-wheel arrangement this is!—the corporation works its employees, the employees work the doctor, the doctor works the corporation, and they all work one another.

We found that practically the entire Italian male population of Buffalo is entitled to medical services under cheap contract, and that the doctors holding these contracts, in some cases, are caring for the families at cut rates, and a few are giving medicine free of charge. This system has grown from bad to worse. As the field of competition increases, the younger graduates are taking up the work more cheaply than their predecessors. What is the result of this mad competition? The physician has thrown off the dignity of his profession and has stooped to the acceptance of a mere pittance as compensation for his professional services. Of course, the number of patients he must call on is great, and he cannot, therefore, render to each individual the medical attention required, for he must "be up and doing," as he must utilize every minute to the best of his personal advantage. Under such a system there is no incentive to do good work. The people do not realize their danger, and something must be done to educate them to the fact that, far from gaining any salutary advantage, they are committing the greatest folly. The doctors of Italian origin who are holding these contracts realize their mistake, and have given the committee to understand that they would be only too willing to give up their contracts were it not that they fear that some of the American doctors would only too readily take up the work which they should abandon. Such is their plight, and, if these men sacrifice their penurious positions, this society must do all in its power to prevent the niggard and avaricious medicaster from taking their place. Among the Polish population the same system is in vogue, but we are not prepared to state the extent of it in this report.

Another phase of this work was brought to our attention. We learned that a large number of the department stores and other business places have associations which contract with the physician in the same manner. Indeed, this system has become so wide-spread that even a number of the labor organizations have adopted it as "a good thing."

A certain institution which advertises itself as a hospital, engages in wholesale contracts for an infinitesimal amount, to care for its policy-holders, who may be individuals or families, for any illness of any nature whatsoever. This institution has a dispensary where colored solutions under alphabetical labels are dispensed by an undergraduate. We have learned of still another method of securing "the almighty dollar." We learned that a certain Dr. Richardson, whoever he may be, with some twenty others, have prepared a very grandiose and elaborate work which they are handing out at the rate of $10 per copy, and charging $2 extra which entitles the holders of the certificate to free consultation for a period of two years. There is a cooperative plan of procedure between the local representative agent of this erudite organization and a certain leading drug-store which enables them to complete the chain of their depredations most thoroughly. While this very idea smacks of the rankest quackery, yet it is no worse than some of the other cheap contracts held by supposedly regular men. The only difference between them is that one is direct while the other is an indirect mode of procedure.

Another form of contract considered by your committee is one which will tax our efforts to obtain evidence. It was said that some physicians are in the habit of contracting with their patients prior to their illnesses for sums varying from ten to one hundred dollars annually. If such practice is in vogue, it must be most heartily condemned. This gambling game deserves the severest criticism. The physician who practices it is unscrupulous and mercenary. It is an imposition upon society, and, like all other unethical contracts, must be stigmatized with the utmost opprobrium.

We found that each railroad entering Buffalo has its surgeon under annual contract to care for its employees, or any one except a trespasser who may happen to be injured. We do not know the salary paid to these surgeons, but we understand that it is comparatively small for the services required. The action of the committee in attacking the contract-system must not be misunderstood. We do not care whether the physician is overpaid or underpaid. We are attacking it because the principle underlying it all is unethical, unjust, and, in every case, injurious to the profession in general. The surgeon who holds a railroad contract holds it with the proviso that he cooperate with the railroad and work against the interests of the poor unfortunate who happens to come under his charge. This is, of course, a good thing for the railroad, a nice thing for the surgeon, since it nets him a yearly salary, but a very bad thing for the public. We found that, undoubtedly, this particular form of contract is the grandparent of the rest. In justice to our sense of fairness, we could not possibly take any action against the small offenders without attacking these polished violators of the ethical laws who are seemingly responsible for all the others.

We believe that the above covers concisely the whole of the contract-system. The causes of these existing evils were offered by the committee, and are as follows:

1. Lack of knowledge of the ethics of medicine.
2. Professional jealousy.
3. Indifference of the older practitioners.
4. The example set by some of the older practitioners.
5. Overcrowding of the profession.
6. The tolerance of this state of affairs by all medical societies.
7. The commercialism of the age. The professional struggle not only for the almighty dollar but also for the mite(y) cent.
8. The chief cause of all, however, we found to be the complete disorganization of the medical body. This is the phase of the question to which we must give our attention, namely, the disorganization of the medical body.

This evil has been growing insidiously in all its various forms for some time, and has been passed unnoticed by the powers which should have throttled it in its infancy. It may be that the older members of the profession have been swollen with false pride, deeming such considerations beneath their dignity, or it may be that they have had no idea of the extent or character of this pernicious evil. Be that as it may, our investigation has disclosed a state of affairs tolerated or disregarded by the medical fraternity which should never have been permitted to exist. When the true state of affairs was brought to the notice of your committee, some were in favor of adopting extreme measures, but the more conservative element prudently advised the adoption of persuasive measures. The first action of the committee was to send out return postcards to every member of this society. In the short interval of ten days, 225 cards were returned—all save three of which were in favor of this movement. The three cards against it bore no signatures. At the subsequent meeting of the committee, such returns as this showed us that the profession was alive, and, from the remarks on some of the cards, heartily willing to cooperate with the committee. The cards against this movement were without signatures, so that, whatever opposition there is to it, comes from those who have not the courage of their convictions. A second notice was sent to all those members who had not returned the card, reminding them that they had either overlooked or misplaced it, and up to the present date, we have 320 members of this society pledged to support this movement. We are aware of some few men who are opposed to it, but only one of them has had the courage to sign himself against it. The committee charitably refrains from mentioning his name.

In the short time that this committee has had to act, it is sorry to say that it cannot offer a more complete report. Your committee shall not spare its efforts until every man is located who has the audacity to stand for such a system as has been brought to your notice. While almost two-thirds of the members are pledged to this movement, there yet remain about two hundred who have not stated their position, and the committee shall continue its investigation until every member has taken a definite stand. We believe that after every one who has not answered has been interviewed, there will be very few in the opposition. As the committee has been very conservative in the measure it proposes to adopt, it hopes that it will be *heartily approved by this society. Many radical* suggestions were offered, but, after much deliberation, it resolved to adopt the following:

Resolved, That the proposed amendment, if adopted, shall *not apply to present contracts, but shall prohibit any* extension or renewal of the same—except by action of the society, at a regular meeting, upon request of the interested physician.

Add a section to Chapter II of the Constitution and By-Laws to be known as section 13, and to read as follows: No one shall *become a member of this society or continue as such who* engages in contract-work, unless it be governmental in character, but this shall not prohibit an agreement for a particular case nor apply to examinations for an adequate fee.

We further recommend: 1. That the President appoint *from time to time at his own discretion, special committees* to use their influence on any man who continues this unethical practice whether he be a member of this society or not.

2. That a special committee be appointed to confer with the membership committee to devise ways and means to get all desirable men in this society.

3. We recommend that the proper authorities of this society bring this matter to the attention of the State Society for the purpose of gaining its support.

4. That this society meet more frequently, that its members *become more united, and that self-interests be put aside for* the common good of all.

We feel that the above resolution, amendment, and recommendations are not too radical. The various faddists, quacks, *pseudoscientists, and charlatans are the sins of our neglect.* Are we going to commit more sins of omission? The evils dealt with in this report and practiced by the supposedly regular members of the profession should not be tolerated any longer. We must separate the unethical from the ethical practitioner. We must ostracize him as we have the advertising quack. Nay, we must do more. We must use antagonistic measures if persuasion fails to convince him of his error. The methods of antagonizing him have been discussed *by the committee, but it is not our purpose to speak of them* in this report. We address ourselves so strongly because we feel sure that after all the cards have been returned, there will be very few offenders left. To these men we offer fellowship not only in this society, but, through it, also to the society of the state and nation. The membership of this society consists of practically all the physicians of Erie county. Many of the men who do not belong to this society are those who have graduated in medicine within the last few years, *and most of these can be easily induced to become members.*

The above is the situation which is now confronting us. It is high time for us to separate the sheep from the goats. If medicine is a profession, if it stands for something more than mere commercialism, if it possesses every quality that is honorable and noble, then we should do nothing to degrade it. We should rather raise it until it has reached the climax of ethics, and its standard has become the highest obtainable. But this can never be accomplished by suffering the contaminating presence of men who engage in degrading work to remain within this or any other medical body. If there be any set of men who wish to continue this debasing practice, let them be separated from those who have enough principle and honor to deem such work beneath the dignity of the medical profession. We therefore recommend that this society use every possible effective measure to bring this about, and purge itself of all those who are unworthy to be regarded as its members. We have not been guided by animosity or actuated by malice in arriving at our conclusion. We have no feeling of resentment toward any man. We have consistently considered big and little offenders alike. We believe in the utmost charity to all, for even your committee has among its members men who are or have been violators. Yet, in justice to our profession, besmeared in the mire of commercialism, we have been compelled to suggest the proposed amendment. With the confidence of honesty, we submit it for your consideration, knowing that the urgency of the situation demands every honorable man's support.

COMMITTEE ON CONTRACT-PRACTICE,
EDWARD E. HALEY, Chairman.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

IOWA: Capitol Building, Des Moines, September 19-21. Sec., Dr. Guilford H. Sumner.

MASSACHUSETTS: State House, Boston, September 12-14. Sec., Dr. Edwin B. Harvey.

MISSOURI: Kansas City, September 25-27. Sec., Dr. Frank B. Hiller, Jefferson City.

NEW YORK: September 26-29. Mr. Harlan H. Horner, Chief of Examinations Division, Department of Education, Albany.

New Jersey June Report

Dr. H. G. Norton, secretary of the New Jersey State Board of Medical Examiners, reports the written examination held at Trenton, June 20-21, 1911. The number of subjects examined in was 9; total number of questions asked, 135; percentage required to pass, 75. The total number of candidates examined was 77, of whom 66 passed and 11 failed. Twenty-one candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Johns Hopkins Univ....(1901) 83.3; (1908) 85.6;	(1910)	81.8
University of Maryland........................	(1906)	75.
College of Physicians and Surgeons, Baltimore....	(1910)	75, 76.3
Woman's Medical College of Baltimore...........	(1910)	83.1
Harvard University Medical School..............	(1910)	82.3, 85.3
Long Island College Hospital..............	(1910)	80.5, 81.1, 83.5
University and Bellevue Hosp. Med. College..	(1911)	76.7, 78.2, 83.6
New York Homeopathic Med. College and Hospital.	(1910)	79.1
Columbia University, College of Physicians and Surgeons, (1906) 78, (1909) 84.6; (1911) 79.3.		
Albany Medical College	(1911)	81.5
Jefferson Medical College, (1900) 75; (1909) 80.6, 85.7; (1910) 79.2; (1911) 79.5, 80.5.		
University of Pennsylvania, (1896) 82.5; (1902) 85.5; (1909) 77.8; 82.5; (1910) 79.8, 81.1, 83.3, 84.5, 84.6, 84.9; (1911) 76.6, 78.5, 78.7, 82.8, 83.7, 84.5.		
Medico-Chirurgical College of Philadelphia, (1896) 84.9; (1904) 87.3, (1906) 79.6; (1907) 79.2, 81.6; (1908) 75.5; (1909) 78.1; (1911) 76.5, 84, 85.4, 85.7, 86.1.		
Hahnemann Medical College and Hospital, Philadelphia, (1911) 78.5, 79.1, 85.4.		
Woman's Medical College of Pennsylvania........	(1911)	81.3
University of Texas............................	(1911)	85.9
University College of Medicine, Richmond........	(1908)	78.2
McGill University, Quebec......................	(1908)	86.1
Queen's University, Kingston, Ontario...........	(1901)	80.7
University of Naples, Italy........(1896) 76.5;	(1909)	77.8
University of London, England..................	(1905)	86.8
University of Berlin, Germany..................	(1910)	76.3

FAILED

College	Year Grad.	Per Cent.
Kentucky School of Medicine........(1892) 59;	(1906)	65.3
University of Michigan, Dept. of Med. and Surg..	(1880)	66.6
St Louis College of Physicians and Surgeons.....	(1906)	73.1
Long Island College Hospital...................	(1908)	65.
Hahnemann Medical College and Hospital, Philadelphia, (1908) 71.1; (1910) 73.3.		
University Medical College, Richmond...........	(1910)	72.9
University of Naples, Italy, (1895) 68.8; (1905) 70.4;	(1910)	73.3

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Rush Medical College..................(1904)	(1910)	Illinois
University of Louisville.......................	(1908)	Kentucky
Cornell University Medical College.....(1903)	(1910)	New York
University and Bellevue Hosp. Med. College....	(1909)	New York
New York University Medical College............	(1885)	Illinois
Long Island College Hosp...(1899) New York;	(1910)	Maine
New York Homeopathic Medical Coll. and Hosp..	(1897)	New York
Woman's Medical College of Pennsylvania......	(1908)	Colorado
Jefferson Medical College......................	(1906)	Delaware
University of Pennsylvania, (1900) New York; (1906) Delaware; (1908) New Hampshire; (1910) Maine.		
College of Phys. and Surg., London, England...	(1910)	Vermont
University of Palermo, Italy...................	(1906)	New York
University of Geneva, Switzerland..............	(1896)	New York
University of Naples, Italy....................	(1898)	Colorado
Owens College, Manchester, England............	(1895)	Delaware

The following questions were asked:

ANATOMY

1. Describe the endocardium. 2. Give origin, branches and parts supplied by the musculo-spiral nerve. 3. Name five muscles of the shoulder and arm. Give origin, insertion and action of any *one* of the five 4. Name the muscl
of the femur. 5. What are the
vein? 6. Mention an anastomos
veins. 7. Name, locate and describe the largest of the cranial ganglia. 8. What nerves supply the knee-joint? 9. In what respect do the pulmonary differ from other veins? 10. Describe the facial vein. Name its tributaries. 11. Describe the long saphenous vein. 12. What muscles (*a*) elevate, (*b*) depress the os hyoides and the larynx? 13. In fracture of the shaft of the radius near its center, what muscles are involved in displacement of the fragments? 14. Name and describe the different glands of the stomach. 15. In what way do the axillary and deep cervical glands communicate with each other.

HISTOLOGY

1. Give composition of human blood. 2. Mention different leukocytes and derivation of names. 3. What are thrombocytes? 4. Give structure of the mucous membrane of the stomach. 5. What cells line the larynx, trachea, bronchi and bronchioles?

PATHOLOGY

6. Give rôle of white blood-cells in infection. 7. What is hemolysis? 8. Define agglutination. How produced? 9. Define atelectasis; give causes and effects. 10. What will cause and what are the effects of exclusion of bile from the intestines?

BACTERIOLOGY

11. Give chemical composition of bacteria. 12. What are proteid bodies? Name varieties and describe them. 13. What substances must be supplied to bacterial cells for their food? 14. Mention other bacterial functions besides disease production. 15. What are the fermentations of milk? Which are innocuous and which harmful? State effects of pasteurizing and boiling.

PHYSIOLOGY

1. What chemical change is necessary for blood coagulation? 2. Is the alkalinity of the blood increased or diminished by exercise, lactation or digestion, and why? 3. State the normal amount of blood in a man weighing 160 pounds. How is it renewed after hemorrhage? 4. What is absorption, and by what process is it accomplished? 5. What conditions favor, and what conditions retard, absorption? 6. State the origin and function of lymph. Is it coagulable, and why? 7. What tissues and organs are developed respectively from the ectoderm, mesoderm and entoderm? 8. What are the Wolffian bodies, and what becomes of them? 9. Discuss the *corpus luteum. Does it indicate pregnancy? Explain.* 10. What principal centers are located in the medulla? 11. What are the functions of the brain membranes? 12. Compare the functions of the white and gray matter in the encephalon. 13. Name, *in order of importance*, the organs in which animal heat is developed. 14. What variations of temperature are found in different parts of the body? Why? 15. Can a man live on an exclusively meat diet? Why?

CHEMISTRY

1. (*a*) How does uric acid form in the system? (*b*) Of what are gout stones principally composed? (*c*) What is the solubility of uric acid? 2. (*a*) State the origin of tartaric acid and other tartrates. (*b*) Give chemical formula of cream of tartar. (*c*) Rochelle salt. 3. (*a*) What are fats chemically? (*b*) What becomes of the fats ingested and what is the province of adipose in the body? (*c*) Under what condition does fat occur in the urine? 4. (*a*) What is nitroglycerin? (*b*) How is it used in medicine and what is its effect on the vascular system? 5. (*a*) What is chloral hydrate? (*b*) How does chloral act as a poison? 6. (*a*) What is the difference between ferrous and ferric salts? (*b*) Give examples by formulas. 7. (*a*) What is potassium permanganate? (*b*) Give formulas and its action as a disinfectant. 8. (*a*) Which are the two iodides of mercury? (*b*) Give formulas. (*c*) What is the difference in action of the "ous" and "ic" compounds of Hg? 9. (*a*) Define the term hardness as applied to a potable water? (*b*) What does the presence of an abnormal quantity of chlorides in a drinking water indicate? 10. Name three pigments normally present in human urine. 11. (*a*) Name three univalent elements. (*b*) Name a monobasic, a dibasic, and a tribasic acid radical. 12. (*a*) Give source, symbol, valency and atomic weight of bromin. (*b*) What is acidum hydrobromicum dilutum (U. S. P.). 13. (*a*) What is oxalic acid? (*b*) For what salt is it liable to be mistaken? (*c*) Give treatment for poisoning by oxalic acid. 14. (*a*) What are the principal constituents of cow's milk? (*b*) Give chemical explanation of the souring and curdling of milk. 15. Name the alkaloids of belladonna, aconite, nux vomica and opium.

PRACTICE OF MEDICINE

1. Describe bubonic plague. 2. Differentiate tonic and clonic spasms. 3. Describe the different stages of syphilis. 4. Differentiate cystic and renal hematuria. 5. Give the causes and symptoms of cholelithiasis. 6. Give the causes and symptoms of edema glottidis. 7. Give four physical signs present in consolidation of lung tissue. 8. How would you determine high blood-pressure? What is its significance? 9. What, how much and how often should a four-months-old bottle-fed baby be fed? 10. Differentiate ataxia and aphasia, and give the location of the lesion in each. 11. Where is bronchial breathing heard normally? What does it indicate when heard elsewhere? 12. What is the significance of (1) epithelial; (2) granular; (3) fatty and (4) waxy casts in the urine? 13. Describe the prodromal symptoms, giving the duration of each in (1) scarlet fever; (2) measles, and (3) small-pox. 14. Give three causes for specific gravity of the urine (1) under 1010, and (2) over 1030, and the significance of each. 15. Describe vesicular, papular and pustular inflammation of the skin and name a disease of which each is characteristic.

SURGERY

1. Diagnosis and treatment of perforation of intestine in typhoid fever. 2. Give etiology, diagnosis and treatment of empyema of the frontal sinus. 3. Give symptoms and treatment of ischiorectal abscess. 4. Treatment of compound fracture of tibia and fibula. 5. Describe tertiary syphilis of the pharynx. 6. Diagnosis of embolism of the mesentery. 7. Mention the causes of incontinence of urine. 8. What are the symptoms of cerebral compression? 9. Describe in detail lumbar puncture. 10. Diagnosis and treatment of papilloma of the bladder. 11. Give indications for drainage. 12. Mention the causes and symptoms of stricture of the rectum. 13. Give treatment of tubercular peritonitis. 14. Give diagnosis of lipoma of the neck. 15. Give diagnosis and treatment of aneurysm of the femoral artery.

OBSTETRICS AND GYNECOLOGY

1. What are the characteristics of the female pelvis and how does the male pelvis differ therefrom? 2. Describe the vulva (*a*) of a virgin, (*b*) of a multipara. 3. Describe (1) the process of fecundation, and (2) the uterine changes resultant. 4. Describe pelvimetry and name the five most important measurements. 5. Describe Walcher's posture and its uses. 6. What precaution as to the urine should be employed in the case of a pregnant woman? 7. Differentiate accidental hemorrhage, placenta prævia, postpartum hemorrhage. 8. Describe fully the treatment you would use in postpartum hemorrhage. 9. How should asphyxia neonatorum be managed? 10. Cause, preventative treatment and curative treatment of ophthalmia neonatorum. 11. What causes puerperal infection? How may it be prevented? 12. How do you prepare a patient for an operation which is to involve both the abdominal surface and the vagina? 13. What are the causes of pelvic abscess? Outline treatment. 14. Describe the menopause and name the diseases common to that period of life. 15. Differentiate vaginitis and vaginismus and give treatment of the latter.

MATERIA MEDICA AND THERAPEUTICS

1. What remedies may be used to induce emesis? Give dose of each. 2. Name three mineral acids with therapeutic properties of each. 3. State uses and doses of salol, guiacol and heroin. 4. Give the source and physiological action of opium; name four preparations with adult dose of each. 5. Define alteratives; name five used in medicine with the therapeutic properties of each. 6. Compare the physiological action of aconite and digitalis; give adult dose of each. 7. Describe symptoms of ptomain poisoning; outline the treatment. 8. Differentiate the effects of strychnin, nitroglycerin and strophanthus on the arterial system. 9. Mention three vegetable and three mineral astringents with adult dose of each. 10. Specify the precautions to be used in administering chloroform; give reasons therefor. 11. Diagnosticate uremic poisoning; outline an eliminative treatment. 12. Explain the action and effects of phenacetin; give adult dose. 13. Prescribe in proper form for chronic bronchitis in an adult; explain the action of the ingredients used. (Candidates must not sign name or initials.) 14. Enumerate the official praparations of arsenic; state the dose of each. 15. Give three examples of animal extracts with indications for the use of each.

HYGIENE

1. Define hygiene. 2. What would you advise a person to do that fears pneumonia, rheumatism, nephritis, insomnia? 3. What is absolutely necessary for the maintenance of the healthy functions of the body 4. What is an antiseptic? What is meant by the term disinfection? 5. Name five disinfectants. 6. Why does a heated atmosphere charged with moisture render sunstroke liable? 7. State the time that quarantine should be imposed in (*a*) diphtheria; (*b*) small-pox. 8. What instructions should be given a nurse respecting the prevention of the spread of scarlet fever from the sick room?

MEDICAL JURISPRUDENCE

9. State the difference between criminal and civil malpractice. 10. Name some of the violent causes of death. 11. Give in detail the condition which would warrant the induction of abortion by the practitioner. 12. Define the word "insanity." 13. Name the post-mortem signs external and internal of recent drowning. 14. When is induced abortion lawful and what are the conditions in which it is called for? 15. In a case of suspected infanticide, what are the evidences of live birth?

HOMEOPATHIC MATERIA MEDICA AND THERAPEUTICS

1. Compare arsenic, camphor and ipecac in measles. 2. Compare china, rhus, and bryonia in bilious fever. 3. Compare secale, belladonna, and crocus, in uterine hemorrhage. 4. Compare nitric acid, hepar, and hyoscyamus in cough. 5. Compare phosphorus, arsenic, and antimonium tart., in edema of the lungs. 6. Prescribe for chill and fever, thirst, quick pulse, hot, dry skin, nervous excitement, piercing pains in chest and dry cough. 7. Prescribe for idopathic intercostal neuralgia in anemic subjects, with deranged uterine function. 8. Prescribe for constant thirst, nausea, prostration, burning in stomach, violent belching, vomiting. 9. Prescribe for sick headache from wine, study, sedentary habits, beginning in the morning and increasing all day, worse after eating or from noise. 10. Prescribe for delirium with incoherent muttering, furious, loquacious, small quick pulse, skin cold and clammy. 11. Give treatment for apoplexy. 12. Give treatment for gall-stone colic. 13. Give treatment for mastitis. 14. Give treatment for acute articular rheumatism. 15. Give treatment for earache.

Book Notices

MEDICAL DIAGNOSIS. By W. Mitchell Stevens, M.D., M.R.C.P., Fellow of University College, London. Cloth. Price, 25 shillings net. Pp. 1571, with 177 illustrations. London: H. K. Lewis, 136, Gower St., 1910.

The plan of this book is to give an outline of the symptoms and signs of a disease and then to state under the head of differential diagnosis the other diseases from which, because of close or superficial resemblance, it is to be differentiated. This plan has been consistently carried out and the salient points in medical diagnosis and differential diagnosis are well set forth. It is of value, therefore, to the student who is preparing for examination and who wishes to have these facts in tabular form. It may also prove of service to the physician who, when confronted by a puzzling case, wishes to fortify himself in his tentative diagnosis by excluding other possible confusing diseases. He will here find listed the conditions which might cause error.

There is a lack of consideration of the subject from the standpoint of physiology and pathologic anatomy, which would enable one to see more clearly the reasons for symptoms and signs. The book is too much on the order of the quiz-compend, which has its place, though not a very honorable one. And the same character of the book makes it for the practitioner, while not an unsafe guide, yet one that helps him very little, for it does not make him think and reason enough. Diagnosis should be the result of a logical mental process and not a search through the index to see if perchance the right name may be found.

There are numerous good illustrations. The text is seldom ambiguous; in fact, the sentences, and even paragraphs, are at times little more than lists of symptoms or of diseases. Most of the facts, as stated, are such as one would agree with. In a book of this kind it is inevitable that there should often be omission of what seems to the reader an important symptom—perhaps his pet symptom—or an emphasis laid on what he would regard as a feature of minor importance. But on the whole one can endorse what is said, and the criticism is rather on the plan of the work, as already stated.

HANDBOOK OF DISEASES OF THE EYE. A Text-Book for Students and Practitioners. By Harry Caldwell Parker, M.D., Clinical Professor of Ophthalmology, Indiana University School of Medicine, Indianapolis, Ind. Cloth. Price, $2 net. Pp. 303, with 116 illustrations. Philadelphia: F. A. Davis Co., 1910.

Now that the general practitioner has been urged, in view of the activity of the "doctor of optometry," to inform himself concerning the elements of ophthalmology—and in particular the practice of refraction work so as to be ready to "fit glasses"—one looks with more than ordinary lenience on the multiplication of undergraduate text-books dealing with ophthalmic science. While Parker's manual is no better and no worse than the dozen other compends that are accessible to the student, undergraduate and postgraduate, yet it lacks in the section given over to the determination of the refraction and dismisses in less than thirty pages what might well occupy fifty. Doubtless, this is due to the restricted character of the book; perhaps, after all, the various problems that confront one in "fitting glasses" are not to be solved by reading school-books but by actual practice and instruction in clinics and elsewhere.

Although few of the illustrations are original, they are better than one sees in the average manual of ophthalmic practice. The descriptions of diseases and of operations are, as a rule, lucid and effective.

UNSOUNDNESS OF MIND. By T. S. Clouston, M.D., LL.D., F.R.S.E., Formerly Lecturer on Mental Diseases in the University of Edinburgh. Cloth. Price, $2.50 net. Pp. 360, with 14 illustrations. New York: E. P. Dutton & Co., 1911.

This book was written for the intelligent layman. The author has long been known as England's foremost asylum superintendent, whose writings, especially his clinical lectures on mental diseases, have for many years been considered classic. Having due regard for the difficulties attending the popularization of such an all-embracing subject as that included under the title "Unsoundness of Mind," we think that the author has executed his task most satisfactorily. The book is written in an easy and semipopular style, and the views expressed are in general up to date. In our opinion, not only the layman, but also the busy practitioner, will find something of value in this treatise.

MENTAL MECHANISMS. By William A. White, M.D., Author of "Outlines of Psychiatry," Superintendent Government Hospital for the Insane, Washington, D. C. Nervous and Mental Disease Monograph Series No. 8. Paper. Price, $2. Pp. 151. New York: The Journal of Nervous and Mental Disease Publishing Co., 1911.

In eight chapters, mostly reprints from medical journals in which each chapter had been published as a complete article, the author gives a real insight into Freudian psychology. The author does not merely show the results of Freud's influence—he is entirely submerged in the mental mechanisms of the latter's psychology. Irrespective of the fact that "Mental Mechanisms" contains the views of only one school, and that the youngest and most vehemently opposed, the book is worth reading. The author possesses the happy faculty of being able to restate his teacher's opinions in a more interesting and entertaining style than the teacher himself could bring to bear on the subject.

Medicolegal

Tracing Cause of Cold

(Crawford vs. Maine Central Railroad (N. H.), 78 Atl. R 1073)

The Supreme Court of New Hampshire holds that where there was evidence that a woman's illness which terminated in her death, was a natural and probable result of the condition created by the railroad company's negligent failure to keep one of its stations properly warmed, it was no defense to say that colds are contagious, and that she might have contracted her cold by exposure to contagion as well as from exposure to the low temperature of the station. The difficulty with that contention in this case was that there was no evidence of exposure to contagion; either that colds of any description were generally prevalent, or that any person with whom the woman had come into contact suffered in that way. The only cold in the evidence was the one she had. Whatever the truth may be as a matter of science, there was competent evidence in the case that colds might be produced by such exposure as befell this woman through the company's failure to properly warm the room provided for waiting passengers. The possibility of other sufficient causes of which there was no evidence did not preclude the jury from ascribing the cold to the cause of which there was evidence, if the connection, in the light of all the evidence, appeared to them sufficiently clear and definite. The possibility that something else might have been the primary cause thereof was not an answer as matter of law. It was for the jury to determine *the probable cause on all the evidence. If* a person were at the same time exposed to two sources of contagion equally liable to infect him with disease, whether, if so infected, the infection were due to one cause or the other would be mere speculation or conjecture. But, if there were proof of exposure to one source of infection sufficient to cause the disease, the possibility of other sources of infection, without proof of exposure, would not render the conclusion that the disease was due to the known exposure a guess or conjecture. The latter case would present a question of probability for the jury; the former would not. If the cold in question was a "grip cold," solely due to exposure to a germ, and not due to the exposure in the company's station, it was entirely immaterial where it was contracted.

Death During Administration of Chloroform Accidental—Not *Within Exceptions to Accident Insurance Contract* —"Surgical Treatment"

Beile vs. Travelers' Protective Association (Mo.), 135 S. W. R. 497

The St. Louis Court of Appeals reverses here an order setting aside a verdict for the plaintiff on an accident benefit certificate issued to her husband, who died while chloroform was being administered to him by a physician preparatory to performing a surgical operation on him for fistula, his death occurring after from 20 to 30 drops of the chloroform had fallen on the mask, without having had the knife applied to him and without surgical treatment having been begun, unless administering chloroform was "surgical treatment."

One of the defenses was that the insured did not die by "accident," within the meaning of the contract; but it is held that it was error to hold as a matter of law that the death was not by accident. In order for the dilatation of the heart to have been the natural and probable consequence of the administering of the chloroform, and therefore not an accident, it must have been a result which was expected, or one which ought to have been expected, and this could not be without the insured knew of the defects in his heart and other organs, or they were so apparent to the ordinary powers or means of perception that he ought to have known of them.

Nor does the court consider that it was a defense that the benefit certificate provided that the benefit did not cover injuries "fatal or otherwise, resulting from any poison or infection, or from anything accidentally or otherwise taken, administered, absorbed or inhaled," because the Supreme Court of Missouri has held that "such exceptions do not cover medicine (even though it contain poison) or anything taken or administered in good faith to alleviate physical pain, even though it results in unexpected and unintentional death."

With regard to a special exception of the contract of death caused "wholly or in part by a bodily or mental infirmity or disease," the court thinks this clause meant nothing more than that, in order for the plaintiff to recover, the administering of the chloroform, and not bodily or mental infirmity, must have been the proximate cause of the death.

Lastly, the court is unable to agree with the contention that the death did result from "surgical treatment," within the meaning of another exception of the contract. The court gathers from reading certain definitions that "surgical treatment" means treating a disease or a patient by means of surgery, which in turn means applying manual operations or instrumental appliances to the affected part for the purpose of curing or relieving the bodily disease or ailment. Administering chloroform as was done in this case does not come within any of these definitions or meanings. It was not a manual operation or the application of an instrumental appliance, and was not resorted to as a remedy or for the purpose of curing or relieving the insured's ailment. It was administered as preparatory to the surgical operation; but so might have been his bath, and if he had died in his bath it would not be seriously contended that he died as a result of a surgical treatment. The most that might be claimed for the defendant was that the language of the exception was so vague and general, not identifying the subject-matter, that oral evidence was admissible to identify it, to show just what was comprehended within the term "surgical treatment," and that the jury should have been left to decide the matter as a question of fact. The jury found that "surgical treatment" did not include the administering of chloroform under the circumstances here disclosed, and the court is of the opinion that its finding was in accordance with the usual and ordinary understanding of the term.

Paralysis of Hand is Paralysis of "Either Extremities" and a Permanent and Total Disability

(Brotherhood of Locomotive Firemen and Enginemen vs. Aday (Ark.), 134 S. W. R. 928)

The Supreme Court of Arkansas says that it was contended that if the plaintiff Aday had permanent paralysis of his hand, that it was not "permanent paralysis of either extremities," and that he was not thereby "permanently and totally disabled or incapacitated from performing all manual labor" and entitled to the amount of his beneficiary certificate in the brotherhood. But the extremities of the body are four in number and "either" is one indifferently, any one of them; and the permanent paralysis of a hand resulting from a cut on the arm brought the plaintiff within the meaning of the term "permanent paralysis of either extremities." Moreover, the court can see no difference between the total incapacity of the beneficiary member by the loss of a hand by actual separation and its absolute loss of usefulness by paralysis thereof, and holds that the latter was such a permanent and total disability as was in the contemplation of the parties in the making of this contract. The undisputed testimony showed that his left hand was paralyzed, that the four fingers of it were atrophied or "dead—no feeling in them at all," as he expressed it; that he was unable to grasp anything; that he had very little grip in his thumb, and that his hand was getting worse all the time; and that because of it he was unable to perform, and compelled to retire from, any further railroad service whatever. Two of the three experts employed by the brotherhood to examine him testified that the left hand was paralyzed and the disability permanent, and the other that without an operation it was permanent paralysis; and the proof was undisputed that his condition was such that he could not procure the services of such an eminent specialist as would be able to perform the operation that might result in preventing the disability from continuing permanent. There was no conflict in this testimony. It was undisputed that his left hand was permanently paralyzed, unless, as one expert thought, it might possibly be cured by an operation by such an eminent specialist as the undisputed testimony showed he had no means to employ. Under such circumstances, there was no question for the jury, and the court did not err in directing a verdict in favor of the plaintiff.

Society Proceedings

COMING MEETINGS

American Electro-Therapeutic Association, Philadelphia, Sept. 6-7.
Medical Society of the Missouri Valley, Omaha, Neb., Sept. 7-8.
Washington State Medical Association, Spokane, Sept. 5-7.
Wyoming State Medical Society, Thermopolis, Sept. 4-5.

AMERICAN OPHTHALMOLOGICAL SOCIETY

Forty-Seventh Annual Meeting, held at New London, Conn., July 11-12, 1911

The President, Dr. E. Gruening, New York City, in the Chair

Officers Elected

The officers elected were named in The Journal, August 5, p. 490. The society will meet next year June 11-12, probably at Hot Springs, Va.

Four Cases of Acute Disseminated Myelitis, with Retrobulbar Degeneration of the Optic Nerves

Dr. Ward A. Holden, New York City: All these patients (adults) had sensory disturbances in the trunk and limbs, and more or less complete paraplegia. These conditions continue to the present time in two patients, while the other two are dead of respiratory paralysis. The fields of vision in the three cases in which they could be determined were peculiar. In one there was excessive eccentric contraction of the field with fair central vision, and in two there was hemianopia for certain test objects in one eye alone. No autopsy material was obtained other than a portion of the cervical cord in two cases. Photomicrographs of sections of these cords show characteristic foci of degeneration, and also the arteries, with cellular infiltration about them; running from the uninfiltrated pial sheath to the areas of softening.

A Case of Periodic Fugacious Episcleritis

Dr. Albert C. Snell, Rochester, N. Y.: A woman, 42 years old, had recurring superficial episcleritis at each menstrual epoch. There was a history of attacks extending over a period of five years and still recurring. The season does not appear to have anything to do with the occurrence of attacks.

Serum Treatment of Sympathetic Ophthalmia

Drs. George S. Derby, Boston, and H. N. Pratt, Louisville, Ky.: The patient developed severe uveitis of the right eye following injury to the left. There was no improvement under inunctions and massive doses of salicylate. The injection of serum from a patient recovering from sympathetic disease was followed by marked improvement. A subsequent recurrence necessitated further injections of serum at intervals during eight weeks. The patient was discharged with useful vision. The same procedure was attempted in several other cases with different serums but without marked results.

DISCUSSION

Dr. R. N. Randolph, Baltimore: It really looks as if we had in this serum a powerful remedy for sympathetic ophthalmia, but the difficulty that exists in getting the serum makes it doubtful whether we are justified in changing our attitude toward injured eyes. There are more cases of this disease reported than there used to be and I think that this is largely due to the existence of a more venturesome spirit in treating diseased corneas by means of salicylate of soda. In the cases of children, particularly, I believe that we should take no risk.

Dr. J. H. Claiborne, New York City: Six or eight years ago Dr. E. B. Coburn and I pursued a number of investigations along these lines. The results of these experiments were absolutely negative. Our conclusion was that one cannot influence in rabbits a sympathetic ophthalmia by the injection of a corresponding serum into the venous system.

Dystrophia Epithelialis Corneæ (Fuchs); Report of a Case

Dr. Arnold Knapp, New York City: My patient was a woman, aged 81, who, after a successful cataract operation, without signs of inflammation or glaucoma, developed these curious corneal changes. The other eye was operated on twelve years ago and presents similar, but more pronounced, changes in the cornea.

A Protest Against the Indiscriminate Use of the Organic Compounds of Silver in Ophthalmic Practice

Dr. Samuel Theobald, Baltimore: These compounds are unquestionably more liable to produce conjunctival argyria than is silver nitrate. Before their introduction, this was a rare condition, being practically never seen except in old cases of trachoma. Now it is relatively common. For this reason, they should not be used when other remedies are really efficacious. An observance of this rule would very nearly limit their employment to gonorrheal and trachomatous conjunctivitis. Especially are they contra-indicated in catarrhal conjunctivitis, in which they are now so generally prescribed, because in a collyrium of zinc sulphate and boric acid we have a remedy that is more surely and promptly efficacious.

DISCUSSION

Dr. Lucien Howe, Buffalo, N. Y.: A very excellent report on this subject was made by a committee of the Section of Ophthalmology of the British Medical Association. It contained the statement that the proportions of silver in these compounds vary greatly. If they are as efficacious as some think, this is evidently not due to the amount of silver that they contain. Before adding to the amount of advertising that we have given to various proprietary compounds, it would be well for us to examine our records to see whether we do get the results that we think we get from them and whether we could not obtain as good results from some other remedies that we have known of for a long time.

Dr. Alexander Duane, New York City: The only antiseptic that has a practical value in the limits of time that a solution in the eye can act is nitrate of silver. Therefore, we are thrown back on detergent solutions. In this capacity some of the silver compounds have an important value.

Dr. Walter B. Johnson, Paterson, N. J.: In employing nitrate of silver, one knows the strength of the solution in each instance, and there is very little danger of argyrosis. These proprietary medicines are not what we have been led to believe they are.

Excision of the Tarsus and Conjunctiva (Heisrath) in Old Trachoma

Dr. J. H. Claiborne, New York City: Expression has been considered as indicated for trachoma in the florid stage and for trachoma that is marked by cicatrization with abundant granulation. In the latter stages of the disease, however, the results of expression are disappointing. In the first patient, the result of the more radical procedure in both eyes was an entire cure. The result was the same in other cases. I consider this operation indicated in all cases of trachoma in which cicatrization has commenced, and in which pannus and keratitis are present. It should be done, however, only as a last resort. In cases in which expression will answer, this should be employed. My experience convinces me that the tarsal cartilage in a cicatricial state is the cause of all our woe in old trachoma. In the operation as performed by me, the hands of the operating surgeon alone are around the eye. The clamp used is the result of a number of experiments. The operation is practically bloodless, and can be done in from ten to fifteen minutes, thus differing from other methods.

A Case of Ring Sarcoma of the Ciliary Body

Dr. A. N. Alling, New Haven, Conn.: The region of the ciliary body was occupied by a flat, black, slightly prominent mass, which in part involved the iris, and at several points extended through the sclera, forming irregularly rounded prominences on the anterior surface. The growth was a sarcoma, composed of large endothelium-like cells and spindle cells.

DISCUSSION

Dr. E. Fuchs, Vienna, Austria: I have seen four cases of ring sarcoma, in all of which the eye showed merely a swollen condition and a changed color. It is often impossible to make the diagnosis of sarcoma in these cases, because one finds the eye too intensely fixed.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Philippine Journal of Science, Manila

April

1 *Action of Tropical Sun on Men and Animals. H. Aron.
2 *Eradication of Beriberi From the Philippine (Native) Scouts by Means of a Simple Change in Their Dietary. W. P. Chamberlain.
3 *Case of Dysentery Caused by Balantidium Coli with Coincident Filarial Infarction of the Spleen. F. B. Bowman.
4 Some Observations on So-Called Flagellates, Ciliates and Other Protozoa Encountered in Water and in Human Stools. E. H. Ruediger.

1. **Action of Tropical Sun.**—Experimental research by Aron showed that under climatic conditions, even during the cooler seasons of the year in Manila, animals, such as rabbits and monkeys, which by nature have only a limited power of physical heat regulation, or animals the physical heat regulation of which is artificially inhibited (tracheotomized dogs) die if exposed to the sun, the body temperature rising to febrile heights. If the same animals are protected from the rays of the sun, or if the increase of heat due to radiation from the sun is compensated by an increased loss such as would be brought about by a strong wind, then the animals suffer no discomfort. Insolation of the skull alone is without effect if the body temperature is kept within normal limits. The postmortem findings on the animals dying as a result of insolation show decided hemorrhagic lesions of the meninges in the brain, and in monkeys, in the heart. In animals without sweat glands the subcutaneous tissues are heated by the radiated heat from the sun to temperatures above those compatible with life. The human skin if exposed to the sun is warmed to about 3 to 4 C. above the normal skin temperature. An increase, even to the normal body temperature, is prevented by evaporation of sweat. The cooling effect of the sweat secretion causes a fall of the skin temperature even if insolation is continued during longer periods. The brown skin of Malays, while theoretically absorbing more heat in the sun, shows a smaller rise in temperature in the tropical sun than the skin of white men under similar conditions. As an explanation, it is believed that an earlier and better water evaporation by sweat secretion takes place. The air in the human hair, especially in black hair, under the influence of the tropical sun acquires temperatures far above those compatible with life It was demonstrated by Aron that in the tropical sun a man with a colored skin is in a better position as regards heat regulation than is a man with a white skin.

2. **Eradication of Beriberi.**—The real factors in the eradication of beriberi from the Scout organizations have been a reduction in the amount of rice consumed and the addition of a legumen. The result was accomplished without the use of undermilled rice.

3. **Dysentery Caused by Balantidium Coli.**—During the past three years Bowman has seen ten cases of infection with *Balantidium coli*. Two of the ten cases terminated fatally, but the others have had no symptoms other than an occasional diarrhea. Even in the severe infections, the diarrhea was more or less intermittent in character, the parasites being found in the feces only during these attacks. This phenomenon is explained by Bowman in the following manner: The organisms, moving along in the submucosa, become so numerous as sometimes to form "nests" from which low inflammations develop, and which, proceeding to ulceration, cause erosion of the mucosa and set free the balantidia. At this time the organisms are found in the feces. In some areas the blood-vessels appear practically to be occluded by the number of balantidia present and this fact in itself is sufficient to initiate an inflammatory process by lowering the tissue resistance.

Journal of Minnesota State Medical Association and Northwestern Lancet, Minneapolis

July 15

5 German Measles, Measles Proper, and Scarlet Fever: The Official View. H. W. Hill, Minneapolis.

New Orleans Medical and Surgical Journal

August

6 *Surgical Treatment of Amebiasis. W. Seaman, U. S. Navy.
7 Public Health Problems Concerned in Amebiasis. J. A. White, New Orleans.
8 Lipomatosis of the Knee-Joint. P. A. McIlhenny, New Orleans.
9 Hypertrophy of Prostate: Its Surgical Treatment. C. W. Allen, New Orleans.
10 Infantile Diarrhea, Fermental Diarrhea; Causes, Symptoms and Treatment. J. W. Gregory, Texas.
11 Onion for Dropsy. E. M. Dupaquier, New Orleans.
12 Tympanotomy, Its Indications and Technic. H. Dupuy, New Orleans.

6. **Surgical Treatment of Amebiasis.**—The surgical treatment of intestinal amebiasis is advocated by Seaman. It is simple, free from danger and not beyond the skill of a surgeon of reasonable ability. It should, therefore, be maturely considered whenever a fair trial of other procedures has lead to no improvement of the patient's condition. Medical treatment and intestinal lavage *per vias naturales* is often unproductive of benefit.

New Mexico Medical Journal, Las Cruces

July

13 Glioma of the Retina. J. G. Holmes, Alamogordo.
14 Diagnostic Significance of Blood-Pressure Estimations. C. F. Beeson, Roswell.
15 Diet in Tuberculosis. L. S. Peters, Silver City.

American Journal of Medical Sciences, Philadelphia

August

16 *So-Called Larval Hyperacidity. J. Friedenwald, Baltimore.
17 *Amyotonia Congenita; Clinical and Pathologic Study. J. P. C. Griffith and W. G. Spiller, Philadelphia.
18 *Toxic Actions of Digitalis on Heart. H. C. Bailey, New York.
19 *Pathologic and Experimental Data Derived From Study of Acute Infectious Disease of Unknown Origin. N. E. Brill, New York.
20 *Intramuscular and Intravenous Injections of Antimony in Trypanosomiasis. C. N. B. Camac, New York.
21 Maculocerebral Degeneration (Familial). E. L. Oatman, New York.
22 Dystocia Due to Ventrosuspension of Uterus; Fetal Death; Cesarean Section. W. R. Nicholson, Philadelphia.
23 *Use of Ascitic Fluid for Nutritive and Other Purposes with Therapeutic Indications. H. S. Carter, New York.
24 Leukocytes in Early or Pre-Agglutination Diagnosis of Typhoid and Paratyphoid. J. F. Hultgen, Chicago.

16. **Larval Hyperacidity.**—Friedenwald's observations with this condition extend over a series of six cases. Of these, there are four males and two females. The ages vary between 26 and 58 years. The symptoms are largely those of a neurasthenia, evincing at the same time special manifestations of hyperchlorhydria, consisting of pain and pressure in the region of the stomach one hour after meals, and extending over a period of from one to one and one-half hours, and usually relieved at the end of this time, or at any time, by the ingestion of food. Acid eructations, nausea and occasionally vomiting of acid material are most prominent. The appetite is usually increased, though on account of the pain induced by the ingestion of food there is usually fear of eating. In not one of Friedenwald's cases could an epigastric painful area be detected, and occult blood was always absent in both gastric contents and in the stools. In all instances general nervous symptoms were manifested, as headaches, insomnia, lassitude, irritability and depression, with periods of discomfort alternating with accountable periods of well-being, the periods of discomfort often being induced by nervous influences, such as shock or anxiety. The quantity of gastric contents obtained is always large, varying between 214 and 368 c.c., always a most significant feature of this condition. The appearance of the contents is also characteristic, consisting largely of a watery secretion containing but little sediment. On standing, two layers are formed—a lower, slight in amount, but with solid sediment, and above a clear layer, larger in quantity. After centrifugalization the amount of solid sediment in proportion to the total sediment is constantly under 22 per cent., while the fluid content ranges as high as 90 per cent. Under normal conditions the amount of the solid sediment is as 40 to 60 to the total sediment; the variation from the normal is an additional evidence, therefore, of the presence of larval hyperacidity. The specific gravity of the gastric secretion varies between 1010 and 1014, reduced from the normal of between 1015 and 1020. The total acidity as well as the percentage of free hydrochloric acid is always normal, the former varying between 38 and 56, the latter between 30 and 44, though in the earlier period of digestion a high total acidity as well as a marked hyperchlorhydria is always manifested. The amidulin reaction is present in all instances. Numerous examinations were made on all the patients.

The treatment of the condition should be largely directed toward the management of the nervous system. In emaciated individuals the best results are obtained by means of a systematic rest-cure treatment. The diet should consist largely of three meals a day, together with intermediate feedings of liquid food. The dietary should contain an excess of proteids and fats, and but a moderate quantity of carbohydrates. Of the various proteid foods, milk, eggs and fish are to be preferred. Fats have a tendency to decrease the gastric hyperacidity, and are to be recommended. Of these, butter, cream and olive oil are especially useful. The carbohydrates are only permissible in the most digestible forms, and vegetables should be mashed and strained and taken in the puree form, free of all cellulose. Water is usually well borne, and may be administered in large quantities with benefit. All acid food, as well as stimulants, should be avoided. The alkalies, together with belladonna, are of great service in the treatment of this disorder. Good results are usually obtained from the use of hydropathic measures, as well as from massage.

17. **Amyotonia Congenita.**—From a review of the few cases yet reported with necropsy, the authors conclude that in the lighter cases the alteration may be confined to the muscles, and possibly, therefore, the disease is primarily muscular, but this inference is not fully warranted. In the intense cases the nervous system is affected in marked degree. The relations to muscular dystrophy are as yet undetermined. The points of resemblance to both these diseases cannot be ignored.

18. **Toxic Actions of Digitalis.**—The observations on which Bailey's paper is based were made on ninety patients under treatment with digitalis or digitalis bodies. The administration of the digitalis to these patients was conducted with great care, and improvement in the character and condition of the pulse, with relief from the symptoms, was the accepted indication for either stopping the drug or reducing the dosage. About 25 per cent. of the patients showed some form of toxic action. These observations were made during the course of another research, and many of them do not cover the entire period of the toxic action. Bailey says that the toxic effects of digitalis and related bodies may be divided into three periods with regard to their occurrence and severity. These toxic symptoms may usually be discovered in their earliest stages by careful and frequent sphygmographic observations. (1) Period of vagus stimulation; (2) period of depression of conductivity with masked vagus action; (3) period of marked muscular irritability with depression of contractility. Digitalis heart-block may be differentiated from ordinary heart-block and from vagus influence as a causative factor. Muscular irritability may be the first symptom observed, the other stages being short in duration and easily overlooked. Irritability from digitalis must be differentiated from the progress of the disease by careful observations of the different functions as evidenced by combined tracings. With therapeutic doses the rise of blood-pressure due to vasoconstriction is so slight that it may be disregarded, but with toxic doses it becomes of extreme importance. Cumulation occurs with digitalis and may last for a considerable period. Vomiting is probably a central effect of digitalis and is a *sign that* absorption is occurring. Pulsus alternans may be relieved by digitalis in some cases.

19. **Acute Infectious Disease of Unknown Origin.**—To supplement the clinical study of an acute infectious disease of unknown origin, which was published in the *American Journal Medical Sciences* for April, 1910, and abstracted in THE JOURNAL, April 30, 1910, p. 1476, Brill records his observation of a fatal case of the disease. This case opened the way to supply the lacking necessary pathologic data which would carry the study nearer completion, and at the same time to furnish additional evidence that the disease has no relationship with any of the typhoidal group infections. A solution

of the mystery, of what the disease really is; is no nearer completion than before. From this report the conclusions may be reached that the organs showed congestion and general parenchymatous degeneration such as would obtain in any intense infectious disease. It is noteworthy, in consideration of the fact that many believe this disease to belong to the typhoidal group infections, that the intestines showed none of the lesions which are characteristic of typhoid. The presence of *Staphylococcus albus* and *S. citreus* and unidentified bacilli, Brill believes, were most probably due to agonal or post-mortem invasion, and were non-pathogenic. The appearance of the patient on the last day of her illness was the clinical picture of coma, petechial eruption, carphology, paralysis of the sphincters and the rapid elimination of the heart action.

20. Abstracted in The Journal, August 12, 1911, p. 591.

23. **Ascitic Fluid for Nutritive and Therapeutic Purposes.**—The ascitic fluid used by Carter in these experiments was obtained from patients with cirrhosis of the liver, free from toxemia of any kind. The nitrogen content should be determined, as this is found to vary within fairly wide limits, 0.17 per cent. to 1 per cent. of nitrogen or more (blood-serum contains about 1 per cent. of nitrogen), and first tappings are apt to be higher in nitrogen content than subsequent ones from the same case. A few important points have been suggested by Carter's experiments on two dogs. In both instances the dogs remained well throughout the experiment, and showed no evidences of serum sickness, except when on large amounts of serum they were occasionally a little less lively, when also a transient edema about the site of injection might occasionally be seen for a few hours; this was, however, an exception. Carter says that it is apparently not advisable to attempt to give the full protein requirement by hypodermic, particularly if the nitrogen content of the fluid is low, as it necessitates injecting excessive volumes of serum, and under such circumstances a considerable portion of the liquid may be retained in the tissues as edema, and the urine temporarily decreased in amount, thus interfering, for a time, with the necessary elimination of toxins in an infection. While apparently the excessive volumes do not cause a true nephritis, it is, nevertheless, a serious matter to hamper the filtration power of the kidneys. This does not take place when moderate amounts are given for short periods. It is quite essential to give a fair amount of extra water to the system during the use of the hypodermic method, either by the mouth, rectum or hypodermically. It is best to begin with a single moderate dose and gradually increase to two doses daily, twelve hours apart, the actual amount depending on the nitrogen content of the fluid.

Judging from a limited clinical experience, Carter is led to believe that probably one or two doses only may be required to bridge over a desperate period. Probably also the daily dosage should not exceed 10 c.c. to 15 c.c. per kilo, depending on the nitrogen content. For any possible stimulating effect on growth (as in marasmus) the dose should be small, perhaps 2 to 10 c.c. per day. The theoretical indications for its use are suggested as follows: 1. In any condition in which there is need of protein which the organism cannot make use of when given in the ordinary way as food, but probably only for a short time. 2. In conditions in which the tissues are, so to speak, dried out; the percentage of fluid in the organs being lowered, as in intractable vomiting, diarrhea (acute), gastro-enteritis, in children especially, cholera, etc. 3. When the organism is being overdone by an infection for which we have not a specific antitoxin. 4. When for some reason the growth of the body is interfered with by unknown causes, as in marasmus. 5. In blood conditions, such as hemophilia, hemorrhage, melena neonatorum, where the hypodermic use of normal human serum has already been shown to be valuable, with the added advantage that ascitic fluid is easily obtained in large quantities.

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of the mystery, of what the disease really is, is no nearer completion than before. From this report the conclusions may be reached that the organs showed congestion and general parenchymatous degeneration such as would obtain in any intense infectious disease. It is noteworthy, in consideration of the fact that many believe this disease to belong to the typhoidal group infections, that the intestines showed none of the lesions which are characteristic of typhoid. The presence of *Staphylococcus albus* and *S. citreus* and unidentified bacilli, Brill believes, were most probably due to agonal or post-mortem invasion, and were non-pathogenic. The appearance of the patient on the last day of her illness was the clinical picture of coma, petechial eruption, carphology, paralysis of the sphincters and the rapid elimination of the heart action.

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twenty-four hours and then gradually fades. The cases tested were divided as follows: Of twenty-seven cases of (1) cancer in various stages; (2) patients in whom cancer had just been removed; and (3) cases in which the diagnosis was not determined pathologically, a positive reaction was obtained in nine cases, a negative reaction in sixteen cases, doubtful in two cases. Of seventy-three non-malignant cases the reaction was positive in fifteen cases, negative in fifty-five cases and doubtful in three cases. Risley believes that the test is only suggestive and is rendered practically valueless as a diagnostic aid because of the fact that there are undoubtedly present in the blood of many patients other lysins of unknown nature which bring about hemolysis of varying degrees. This test, therefore, as the test done *in vitro*, fails to be of any practical value in the diagnosis of malignancy. It is highly significant, but will require further investigation or a more refined technic before becoming of value.

68. **Chemical and Microscopic Findings.**—Austin agrees with A. Schmidt that the atrophy of the intestinal glands does not cause pernicious anemia nor conversely does pernicious anemia cause any changes in the intestinal mucous membrane which are not produced by many other agencies.

Long Island Medical Journal, New York

July

70 Pathologic Aspects of Primary Tumors of the Spleen. R. H. Fowler, Brooklyn.
71 History of St. Peter's Hospital of Brooklyn. E. J. Morris.
72 Cumberland Street Hospital. M. D. Jones, Brooklyn.
73 Progress Made in Ophthalmology During the Past Year. J. C. Hancock and H. M. O'Reilly.

New York Medical Journal

July 29

74 *Prostatic Suggestions. V. C. Pedersen, New York.
75 *Largest Volunteer Life-Saving Corps in the World. J. Sobel, New York.
76 Routine Examination of Milk. J. A. Roddy, Philadelphia.
77 Case of Infestation with Necator Americanus in a Native of Madras, India. R. C. Rosenberger and W. Brinton, Philadelphia.
78 Hospitals for Inebriates. T. D. Crothers, Hartford, Conn.
79 Overdoing in Prophylaxis and Early Diagnosis of Pulmonary Tuberculosis. C. Rayevsky, Liberty, N. Y.
80 Prevention of Myopia in School Children. W. H. Bates, New York.
81 Resistance of the Street Virus to Antiformin. F. Proescher, Pittsburgh.

74. **Prostatic Suggestions.**—That there is a period in prostatic disease which is being more definitely recognized than previously which rests on the condition of the bladder mucous membrane due to the disease, is the principal point made by Pedersen. He says that if the mucosa is in good condition and the prostate gland has begun to obstruct, the best time for operation is at hand. Delay until the mucosa is greatly injured will mean hazard and likelihood that the injury will be permanent and beyond repair. When the mucosa of the bladder has begun to suffer, it is often because the obstruction by the prostate gland and the cystitis have reached a degree which soon leads to serious results on the kidneys and ureters above. The mere removal of an enlarged and obstructing prostate gland may be mechanically possible and performed without death, but if a bladder is left behind so badly damaged from chronic cystitis as to render functional restoration impossible and as to leave the symptoms proceeding from the bladder virtually unchanged, then the operation has failed of its ideal success. If the prostate gland is merely enlarged, obstructs none or very little, and the bladder is in good condition, operation is not justifiable. If the bladder is changed from inflammation beyond recovery, and if the catheter may be successfully passed, in most cases irrigation is preferable and more conservative than operation.

75. **Largest Volunteer Life-Saving Corps in the World.**—The origin and work of the Little Mothers' League of New York are described by Sobel.

Lancet Clinic, Cincinnati

July 29

82 The Thorax. B. M. Ricketts, Cincinnati.
83 Life-Insurance Companies as Factor in Progress of a Great Nation; Problem of the Uninsured. L. H. Montgomery, Chicago.
84 Repair of the Torn Pelvic Floor. A. P. Cole.
85 Scientific Versus Amateur Psychotherapy. R. Reed.
86 Destruction of Surface and Cavity Neoplasms by Desiccation. A. W. Nelson, Cincinnati.
87 Gall-Bladder and Bile-Ducts. W. D. Haines, Cincinnati.

Ophthalmology, Seattle

July

88 Industrial Education of the Blind. W. H. Taft, Washington.
89 *Hitherto Undescribed Term in Skiascopy. J. H. Claiborne, New York.
90 Intra-Ocular Irrigation After Cataract Extraction. C. Lukens, Toledo, Ohio.
91 Recurring Corneal Erosions. J. S. Wyler, Cincinnati.
92 Treatment of Granular Ophthalmia and Its Complications by the Sub-Conjunctival Injections of a Solution of Cyanid of Mercury. R. H. Elliot, Madras.
93 Native Gun-Powder Injuries of the Eye. R. H. Ellot, Madras.
94 Traumatic Paralysis of the Orbicularis Palpebrarum; Retinitis Proliferans. W. B. Weidler, New York City.
95 [illegible] amination of the Conjunctival Sac.
96 * [illegible] Nerve Elicit Perception of Light? [illegible] N. J.
97 * [illegible] Rhoads, Philadelphia.
98 Relation Between General Arterial Sclerosis and Increased Tension in Eye-Ball. W. H. Snyder, Toledo.
99 Smith Operation for Cataract. A. J. Timberman, Columbus, Ohio.
100 Total Blindness from Toxic Action of Wood Alcohol, with Recovery of Vision Under Negative Galvanism. S. L. Ziegler, Philadelphia.

89. **New Term in Skiascopy.**—The sign to which Claiborne refers and which is characteristic of spherical errors (the behavior of the shadow in spherical errors), he says, is to be seen only when the mirror is turned in a circle, or rotated on an anteroposterior axis. He uses the concave mirror, and employs skiascopy for the purpose of qualitative, approximately quantitative, estimates of refraction and the proving of the functional examination. When the mirror is rotated on the anteroposterior axis, either in spherical myopia or hypermetropia, the shadow moves in the circle, and ultimately always in the same direction with the movement of the mirror. It resembles the turning of a wheel on an axle, or a revolving circle. The shadow chases itself around the pupil. In hypermetropia, speaking from the standpoint of the concave mirror, as the circular movement commences, the shadow is observed to creep from the opposite side of the pupil and chase itself in a circle from left to right, when the mirror is moved from right to left; or, from right to left, when the mirror is moved from left to right. The movement in this case is against the movement of the mirror, and yet each shadow chases the other in the same direction. In the case of myopia, the shadow moves with the movement of the mirror, and starts from the quadrant in which the circular movement of the mirror starts and chases itself around the pupil as in hypermetropia. The movement in both cases, therefore, is purely circular, and the shadow appears to move always in the same direction, though in the two cases it starts from opposite directions. The degree of the error is indicated by signs which are well known to all those conversant with this method—a gray slow shadow indicating high error, a black rapid shadow low error.

96. **Cutting of Optic Nerve.**—This question is answered by Emerson in the affirmative. In a case of glaucoma he cut the optic nerve and the patient stated that he saw "lightning." There is no doubt in Emerson's mind that the cutting of the optic nerve elicited the sensation of light.

97. **Mydriatic Ozena.**—For a few years back Rhoads has noticed that some of his patients emanate a fetid nasal odor a short time after the first instillation of a mydriatic. Cases that had the slightest trace of ozena before the instillation of drops were not recorded. The odor diminishes with the effect of the drops, consequently four hours after the last drops have been put in many patients have very little if any odor, and when they come back for "sync myd." examination, or to have their glasses verified there is not the slightest trace of it. The odor comes and goes with the mydriatic.

Medical Record, New York

July 29

101 Case of Pellagra Which Had Its Origin in Pennsylvania, Probably in Philadelphia. M. B. Hartzell, Philadelphia.
102 Elephantiasis Non-Parasitica. W. G. Thompson, New York.
103 Case of Ostitis Deformans (Paget's Disease). K. M. Vogel, New York.
104 Scrofula. S. Ebrenreich, New York.

105 Flat-Foot in Women and Children. S. Epstein, New York City.
106 Gastric Ulcer Perforating Into the Colon. M. Gross, New York.
107 Habit, the Jaw and Character. J. J. Walsh, New York.

Bulletin of Johns Hopkins Hospital, Baltimore

July

108 *Stereoscopic Roentgenography of Chest with Special Reference to Diagnosis of Pulmonary Tuberculosis. K. Dunham, W. W. Boardman and S. Wolman, Baltimore.
109 *Paroxysmal Hemoglobinuria; Blood Studies in Three Cases. W. L. Moss, Baltimore.
110 *Calcification of the Costal Cartilages, the Cardiothoracic Index and Other Signs of Pulmonary Tuberculosis. W. W. Boardman and K. Dunham, Cincinnati.
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113. **Antiformin in Examination of Sputum for Tubercle Bacillus.**—Boardman recommends the use of sodium hypochlorite solution (antiformin) in the examination of sputum for tubercle bacilli not only in hospitals and dispensaries, but in the laboratory of every private physician. He holds that the general adoption of this method, combined with repeated examinations, will do much towards reducing the percentage of cases clinically diagnosed as definite pulmonary tuberculosis, in which, however, an absolute diagnosis cannot be made. Of far greater value than the finding of tubercle bacilli in the sputum of cases clinically diagnosed as definite pulmonary tuberculosis, is the possibility which this method offers of demonstrating bacilli in the cases still classed as only probable or doubtful, thereby enabling us to enforce a vigorous and systematic treatment at a time when such treatment is of most avail.

114. **Serotherapy of Hemorrhagic Diseases.**—The authors point out that the use of serum injections, the injections of defibrinated blood, and direct transfusion seem to have yielded better results in the treatment of hemorrhage than any other measures. As to the choice between these three procedures, doubtless direct transfusion would be the ideal method were it not for the technical difficulties.

115. **Much-Holzmann Reaction.**—The authors concur in the prevalent conclusion that the Much-Holzmann reaction has no diagnostic significance.

Chicago Medical Recorder

July

116 Case of Blood Transfusion for Postoperative Anemia. H. N. MacKechnie, Chicago.
117 *Abuse of Local Treatment in Gynecology. H. T. Byford, Chicago.
118 Tuberculosis of the Kidney, Ureter and Bladder. S. Dahl, Chicago.
119 Dissertation on Calomel. J. C. Warbrick, Chicago.

117. Abstracted in The Journal, June 17, 1911, p. 1842.

Washington Medical Annals, Washington, D. C.

July

120 *Cutaneous Lesions Associated with Leukemias. H. H. Hazen,
121 tions. E. E. Mayer, Pittsburg.
122 in Psychotherapeutic Practice. D. C.
123 Recovery. H. H. Kerr, Washington, D. C.
124 *Influence of Pregnancy on Diseases of the Eye. D. K. Shute, Washington, D. C.
125 Three Cases of Placenta Prævia. J. J. Mundell, Washington, D. C.
126 School Laggards. H. C. Macatee, Washington, D. C.

120. **Cutaneous Lesions and Leukemias.**—In the review of about sixty cases occurring in the literature Hazen says it can be seen that they can be divided into (1) acute lymphatic leukemia, (2) chronic lymphatic leukemia, (3) splenomyelogenous leukemia, (4) chloroma, (5) multiple myeloma, (6) lymphodermia perniciosa, to which grouping Dr. Strobel's case belongs, and (7) mycosis fungoides. In relation to the last it is interesting to note that Pardee and Zeit have recently reported a case of mycosis fungoides which later turned to a lymphatic leukemia. The lesions consist of pigmentation, edema, vesicles, papules, nodules, tumors, especially of the face, urticaria, diffuse erythrodermia, macules and pruritus. Histologically, the lesions are probably infiltrations of cells escaped from the blood, and not proliferation of preexisting lymphoid tissue. Treatment should be directed towards the general condition and towards the relief of itching and the prevention of cutaneous infection. The Roentgen ray would probably do more to help the skin lesions than any other therapeutic agent.

124. **Influence of Pregnancy on Diseases of the Eye.**—This paper is essentially a plea for systematic and careful examination of the eyes of pregnant women by obstetricians, with the view of safeguarding the vision and even sometimes the lives of these women.

American Journal of Urology, New York

July

127 Rational and Efficient Method of Treating Acute Gonorrheal Urethritis. F. Kreissl, Chicago.
128 Control of Prostitution and Venereal Diseases in Country and Abroad. F. Bierhoff, New York.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

July 22

1 Some Latter-Day Intrusions of Surgery on the Abdomen. C. P. Childe.
2 *Primary Sarcoma of the Vermiform Appendix.* G. Wright.
3 Importance of Drainage in Septic Conditions of the Uterus. J. T. Maclachlan.
4 Adeno-Papilloma of the Rectum. R. Parker.
5 *Surgical Interference in Cancer. A. Paine and G. W. Nicholson.
6 *Influence of Calcarous Drinking-Water in Health and Disease. P. G. Lewis.
7 Congenital Deficiency of Speech Areas. A. E. Tait.

5. **Surgical Interference in Cancer.**—Experimental study has convinced Paine and Nicholson that the behavior, after operation, of two tumors in contiguity lends support to the view that the increased virulence of the recurrence is mainly due to increased blood-supply. It is occasionally stated that this increase is due to the heightened general metabolism of the body called forth by the neoplasm, which, on removal of its main mass, is made use of by such portions as have remained undisturbed. That this is not so was demonstrated by the behavior of two tumors on opposite sides of the body, whose blood-supply is quite independent. In such a case, of which the authors had six, removal of one tumor, even if large, produced no difference in the rate of growth of the other, though this be small. Furthermore, a tumor of a slowly growing series often recurs rapidly after operation; such rapid recurrence may even take place during a negative phase; and the transplantations from an operated tumor (which has recurred rapidly) into healthy mice do not show an increased rate of growth in any way proportionate to that of the recurrence. In eleven out of forty-eight operations—that is, in 23 per cent.—the recurrence was both early and virulent, its rate of growth being in some instances two or three times as rapid as that of the primary tumor or as of the tumors of the remaining mice of the series. This increase in the virulence, the authors claim, is mainly due to the remaining fragments having a very rich blood-supply and not to relief of tension or pressure.

6. **Influence of Calcareous Drinking-Water.**—Lewis claims that there is no evidence that hard water has any bad effect; on the contrary, all the evidence is the other way.

Lancet, London

July 22

8 Clinical Study of Cardio-Vascular Degeneration. J. M. Bruce.
9 *Differential Diagnosis of Over-Distention of the Lung and Pneumothorax. H. Walsham.
10 Permanence of the Cure of Syphilis by Salvarsan. J. McIntosh and P. Fildes.
11 *Acute Dilatation of the Stomach. C. R. Box and C. Wallace.
12 *General Subcutaneous Non-Renal Edema as a Familial Affection. F. H. Edgeworth.
13 Sarcoma of the Penis. H. M. Galt.
14 Case of Anterior Dislocation of the Semilunar Carpal Bone. W. R. Bristow.
15 Case of Plus-Pressure Anesthesia for Exploratory Thoracotomy. F. H. Wallace.
16 *Infarct of the Transverse Colon. H. T. Gillett.
17 Cases of (1) Chronic Pancreatitis and (2) Carcinoma of the Pancreas. G. Y. Thomson.
18 Feeding Experiments in Fowl Spirochetosis. A. Balfour.
19 Fatal Case of Phlegmonous Inflammation of Duodenum Following Impaction of a Fish-Bone. G. Taylor and C. E. Lakin.

9. **Overdistention of Lung and Pneumothorax.**—In pneumothorax, Walsham says, the shadow of the collapsed lung can always be seen, while in the overdistended lung it is never so seen.

11. **Stomach Dilatation.**—Six new cases are cited by Box and Wallace to support in the main their former contention that the pressure exerted on the duodenum by the dilated stomach is an important factor in the production of obstructive symptoms. Beyond reiterating the importance of combining lavage with the prone position nothing new is offered as regards treatment.

12. **General Subcutaneous Non-Renal Edema as Familial Affection.**—Six children born to healthy parents developed a subcutaneous edema at ages varying from 1 to 15 weeks. In one case it was slight and confined to the face, and the child recovered; in the other five, death ensued after a period of from one to sixteen weeks. In three, at least, of the cases no albumin was present in the urine. In the two cases examined post mortem no evidence of nephritis was found. All the patients suffered from a more or less marked diarrhea shown by green liquid motions before, in some instances only a few hours before, the occurrence of the dropsy. The children thus suffered from an intestinal catarrh and the dropsy was a related phenomenon. Edgeworth suggests that the edema may have been due to a damage to the walls of the capillary blood-vessels by poisons absorbed from the alimentary canal without the occurrence of any change in the excretory capacity of the kidneys. Thus in one of the cases it was found that the administration of calcium chlorid diminished the edema. The occurrence of intestinal dropsy in six successive children suggests to Edgeworth the possibility of an inborn defect in the walls of capillary blood-vessels whereby they may be more suceptible to poisons circulating in the blood than are the capillaries of normal individuals.

16. **Infarct of Transverse Colon.**—A woman, aged 49, had been troubled with hemorrhoids for some time, but was otherwise well, till she woke in the night with severe sense of pain in the epigastrium and flatulence. She blamed the cocoa she had had for supper. The next day diarrhea began and the pain in the abdomen increased. On the second day the diarrhea continued and there was nausea. Blood in the stools was first noticed in the afternoon. During the following night she had two actions of the bowels; both were practically pure blood, bright in color, and only very little fecal matter (perhaps ½ ounce in weight). Some clots were present of the size of half a hazel-nut—about 5 ounces of blood in each stool. This condition lasted for several days with vomiting, abdominal rigidity, no distention, pain below the navel and across the abdomen. The pulse and temperature were normal. A distinct thickening could be made out between the navel and the ensiform cartilage; it was tender and moved slightly on respiration. At the operation the transverse colon for the greater part of its extent was found to be of a dark purple color; the walls were greatly thickened. It did not look gangrenous. The ascending colon was anastomosed to the lower part of the descending colon. The patient did well for the first twelve hours. Then she had tetanic spasms, which continued at intervals of a few minutes for nearly twelve hours when she died. There were minute hemorrhages in the walls of the colon which were microscopically shown to be in a condition of infarct. The branches of the colica media were empty; no emboli were found; there was no peritonitis, but there were hemorrhages in the transverse mesocolon. There was a small amount of blood-stained fluid in the peritoneal cavity. Microscopic examination of the mesenteric arteries did not show any sclerotic changes. There was an old mitral lesion, with some narrowing of the orifice, and a few vegetations on the edges of the valve.

British Journal of Children's Diseases, London

July

20 Ateleiosis: Progeria. H. Gilford.
21 Suppurating Ovarian Cyst in Girl, Aged 10 Years, Probably Infected from Hairpins Impacted in the Vagina. H. J. Paterson.
22 Epidemic Anterior Poliomyelitis. N. P. Marsh.
23 *Early Cardiac Paralysis and Hemiplegia in Diphtheria. C. Burrows

23. **Cardiac Paralysis and Hemiplegia in Diphtheria.**—On the eighth day of an attack of severe faucial and nasal diphtheria the earliest suggestion of the coming cardiac trouble presented itself; the first sound of the heart, which up to this time had been quite clear, was noted to be "distant" in quality. For this reason the child was given epinephrin by mouth—m x of a 1 in 1,000 solution—every four hours. For the next three days the first sound of the heart retained the same distant quality, the pulse keeping quite regular. On the twelfth day vomiting occurred. The face was pallid, and the pulse was small but regular. The quality of the heart-sounds remained as before, but the rhythm of the beats was beginning to be disturbed, the short space being shortened, and it was evident that cardiac paralysis had set in. There was still albumin in the urine. All nourishment by mouth was withheld and the patient given rectal feeding, consisting of peptonized milk every four hours, to each of which m xx of the epinephrin mixture was added. Nothing was given by mouth. During the next twenty-four hours the child vomited twice. On the thirteenth day the cantering rhythm or the *bruit de galop* was observed. The pulse was rapid but not irregular. For the following four days the vomiting and retching were very frequent, and continued for eight days altogether, but with lessening frequency. On the fifteenth day the cantering rhythm was still present, the apex-beat being within the nipple line at this time. The sounds were fairly strong. On the seventeenth day there was frequent vomiting, and the heart was much dilated, the apex-beat being ½ inch outside the nipple line. The pulse was very rapid, as were also the heart-sounds, but the cantering rhythm was not heard.

At this time tincture of digitalis, m v, was added to each rectal feeding. Before the administration of the digitalis in the rectal feedings the pulse-rate was 124. The next day the pulse-rate was 132, and the day following the pulse remained small and very irregular. On the third day of the administration of digitalis, the pulse-rate fell to 72. The tincture of digitalis was then only given in every second rectal feed. The following day it was given only in every third feed, and the pulse-rate keeping at 72 to 80 the digitalis was omitted altogether three days afterwards. The pulse-rate kept the same for a week when it slightly increased in rapidity (88-100) and remained much the same until the child's discharge from the hospital. The patient thus appeared to benefit from administration of the digitalis. The nasal twang of the voice continued until the fifty-ninth day of the disease. On the forty-second day the knee-jerks were found to be absent. On the forty-third day paralysis of the left upper limb occurred, the child lifting and moving this arm about with the right arm, which was quite normal. A few days after the paralysis of the arm was noted the left leg was also found to be paralyzed. There was no aphasia. No knee-jerks were present on either side, although the right leg was quite readily moved by the patient. On the fifty-sixth day some difficulty in swallowing presented itself with some dribbling of saliva from the mouth. The diaphragm was not affected. Left internal paralytic strabismus was still present. Thirty days after the onset of the hemiplegia, the left arm and leg had both almost recovered their normal state, the only paralyzed muscles being the extensors of the left thumb and the peronei muscles of the left leg. This condition remained unaltered up to the time the child was discharged from the hospital. Six months afterward the extensors of the left thumb were still weak, and the flexors overacting drew the thumb towards the palm. The child consequently picked up objects with this hand awkwardly. The hand-grip was weak, but seemed to be a trifle stronger than it was four months previously. The muscles of the left arm and forearm seemed a little stiff, but all the movements were free. She could walk better than when she left the hospital, there being almost imperceptible dragging of the left foot; the peronei muscles were, however, still weak, so that the foot could not be thoroughly everted. No knee-jerks were obtainable on either side. The child's health was good and her mental condition excellent. The right arm and leg were quite normal; the heart appeared to be quite sound.

Clinical Journal, London

July 12

24 Common Affections of the Genito-Urinary System in Childhood. II. [illegible] Clarke.
25 Treatment of [illegible] J. Blumfeld.
26 Anesthetics [illegible]

July 19

27 Suppurative Antrum, Acute and Chronic. S. Hastings.
28 *Fourteen Consecutive Successful Laparotomies for Acute Intussusception in Infants. E. W. Roughton.

28. **Laparotomies for Acute Intussusception in Infants.**—There was no mortality in this series of fourteen cases reported by Roughton. The patients were all operated on with the least possible delay and without any previous treatment by inflation or injection. In all the cases the invagination occurred during the first year of life. The oldest was 12 months and the youngest 4 months. Ten of the children were males and four females. One case was enteric, the lesion being a few inches above the ileocecal valve; one was ileocecal ileocolic, i. e., after reducing the common ileocecal invagination a few inches of ileum which had prolapsed through the valve had to be drawn out. The other twelve cases were of the ordinary ileocecal variety, and in nearly all of them it was noticed that the caput ceci was the last part to unfold; in other words, the apex of the intussusception must have been [illegible]ied by the invaginated caput ceci, and not by the ileo-[illegible] valve itself as is often stated in text-books. Roughton [illegible] that in nearly every case of intussusception the trouble [illegible] from what might be called want of tact on the part [illegible]ne ileocecal valve. If the child's bowels are disordered, [illegible]duly active peristalsis hustles the contents of the small [illegible]tine along so fast that it tries to pass the valve before it has been sufficiently digested. In four of Roughton's cases there was a definite history of diarrhea, vomiting or constipation preceding the onset of the intussusception, and he believes that the more often one inquires for a history of previous gastro-intestinal disturbances the more often will it be found that intussusception occurs in children whose bowels are already disordered by flatulence or diarrhea. In one case no tumor was palpable even under the anesthetic, the reason being that the tumor was very small and soft; it was of the enteric variety. The absence of a lump, therefore, must not deter the surgeon from opening the abdomen. Roughton is strongly of the opinion that when efficient surgery is available, distention of the colon with wind or water is a method of treatment which should no longer be employed. If he were so situated that an abdominal section was impossible or unjustifiable, he would employ injection, but in no other circumstances would he do so. Roughton's contention is that if the cases are diagnosed early and treated by laparotomy without wasting precious time over injection or inflation, recovery would almost always follow.

Medical Press and Circular, London

July 12

29 Conical Cornea. S. Stephenson.
30 Chronic Headache: Neurologic Advances Regarding Its Diagnosis and Treatment. T. A. Williams.
31 Some Possible Dangers Connected with Use of Electricity in Every-Day Practice. F. Hernaman-Johnson.
32 Typhoid Fever. L. Drum.

July 19

33 *Asthma in Children. R. O. Moon.
34 Gout and Rheumatism in Relation to Chronic Arthritis. M. Ricklin.
35 Water-Supply and Enteric Fever. G. C. Jones.
36 Harrogate: Its Waters and Its Baths. J. Rutherford.

33. **Asthma in Children.**—For preventing the recurrent attacks of asthma there is no drug, in Moon's experience, so effective as arsenic. Beginning with liquor arsenicalis, m. ii, t.d.s., *it may gradually be increased*; but there is *no object* in pushing it to large doses. Moon has found it *most* satisfactory to give the arsenic alone, and if the attacks are recurring rather frequently to prescribe also at bed*time*:

℞	Gm. or c.c.	
Potassii iodidi	2	gr. iii
Vini ipecacuanhæ	33	m. v
Syrupi tolutani	66	m. xx
Aquam .... ad 30		ad ℥ j

M. S.: *To be taken at bedtime.*

Moon says other remedies which *may* at times prove useful are lobelia in the form of the tincture, 10 minims every half hour, till the paroxysm is allayed, or the *physiologic* effects—nausea and a feeling of *faintness*—disappear. Similarly, belladonna may be given at frequent intervals till the paroxysm ceases or the *physiologic effects* are present. The liquid extract of grindelia, m. 10-15, every three hours, flavored with syrup of orange peel to conceal its unpleasant taste, will often cut short an attack of asthma. Moon cautions that we must always remember that most of the patent powders and medicines which claim to be cures for asthma *are in the nature* of depressants, and are therefore quite unsuited *in most* cases, for children. Apart from this, *they* only *attempt to deal* with the paroxysm, and *therefore no effort* is made to brace up and harden the nervous *system*, which in Moon's opinion, is the most important *thing to do* if we wish to treat asthma scientifically.

Australasian Medical Gazette, Sydney

June

37 *The Intestinal Flora and Its Work. C. Reissmann.
38 Pain in Right Side. E. T. Thring.
39 *Nasal Administration* of Nitrous Oxid, Coleman's Nasal Apparatus. W. R. Parker.
40 Administering of Anesthetics. M. C. Lidwill.
41 Three C[illegible] Salter.
42 *Patholog*[illegible]ovable Kidney. C. MacLaurin.
43 *Case of [illegible] J. M. Gill.
44 Operatio[illegible] to Eversion of the Lower Punctum. W. O. Maher.
45 Case of Tetanus Treated by Subdural Injection of Antitoxin. R. J. Millard.

37. **Intestinal *Flora*.**—Reissmann states emphatically that the lactic *acid treatment* of intestinal putrefaction is not a panacea for all ills, but its value in cases of excessive intestinal putrefaction has been *proved*. Neither is its efficacy to be *called* in question, because a large number of so-called preparations of the lactic acid bacillus are marketed which on examination have been found not to contain the *living* bacillus. Also we should not attribute to the *action* of the lactic acid germ results which may have been produced by special dieting.

43. **Congenital Heart-Block.**—The *patient*, 3 years *old*, though small for her age, was fairly well nourished. She could stand, but not walk. She had a purplish-red color in her cheeks. The abdomen was full, and the liver uniformly enlarged, but not tender. The pulse was perfectly regular; the rate as counted for the full minute by the stethoscope was 50, the net count being 49. No pulsation visible *in* the veins in the neck; precordial *pulsation not unduly* noticeable. Percussion showed *increased* dulness upwards. The heart sounds were *normal*. The respiration rate was 50; but the heart rate and *respiration* rate though almost always coinciding, occasionally deviated a little. Now and then there would be a deep sighing inspiration, followed by a longer *pause than usual*, but during this pause the heart would continue to beat as before. Growth took place very slowly, her general condition showing a gradual improvement. She never had any epileptiform seizures. The pulse rate varied between 47 and 60, but was generally about 50 or a little more. About two years after Gill first saw the girl, he *made* a pulse tracing. There was no murmur or thrill. The heart was evidently hypertrophied as shown by the protrusion of the chest-walls. He could not be sure of any pulsation in the jugulars, and could get no record of any with the polygraph, but the neck was very short. Five months later she had a slight attack of tonsillitis, the temperature being 101, the pulse rate was 64, heart beat and respiration corresponding as before, except when she coughed; the interruption in the breathing caused thereby did not interfere with the heart-beat, which would continue at the same regular rate as usual. In the morning she seemed to be better, and was running about. Death took place quite suddenly in the afternoon. No post-mortem was allowed.

Australian Medical Journal, Melbourne

June

46 Suggestions Concerning Visceroptosis. R. R. Stawell.
47 Studies on Muscular Factor in Infantile Paralysis. W. Mackenzie.
48 *Case of Tetanus Treated with Intraspinal Injections of Magnesium Sulphate.* M. C. Gardner.
49 Embolism of Abdominal Aorta. H. A. S. Newton.

Annales de Médecine et Chirurgie Infantiles, Paris

June 15, XV, No. 12, pp. 369-396

50 Ultraviolet Rays Inadequate for Sterilization of Milk, Etc. Foveau de Courmelles.
51 Insufficiently Fed Infants. (Les nourrissons hypoalimentés; leurs vomissements, leur réalimentation.) J. Lemaire.

Archives des Maladies de l'App. Digestif, Paris

June, V, No. 6, pp. 289-348

52 *Secondary Cancer of the Umbilicus with Gastric Cancer. W. Oettinger and P. L. Marie.
53 Too Perfect Digestion as Cause of Constipation. (La "surdigestion" chez les constipéz.) R. Goiffon.
54 *Tardy Gastric Pains from Spasm of the Pylorus in Winter with Chronic Gastric Ulcer. H. Boschi.

52. **Cancer of the Umbilicus Secondary to Cancer of the Stomach.**—The patient in the case reported was a woman of 34 who applied for relief for pains in the stomach first noted three months before in the midst of apparently perfect health. The pain appeared with symptoms of indigestion and was transiently relieved by vomiting, and she was losing constantly in weight. There was no pain before breakfast but it came on an hour and a half to three hours after meals and woke her at night. The umbilicus was found slightly protruding with a hard, stem-like tumor extending backward to a primary cancer at the pylorus. In the sixty-three cases of cancer of the umbilicus on record, forty-four of the patients were women. Oettinger and Marie emphasize the importance of examining the umbilicus to detect cancer in its incipient phase; there may be merely partial retraction of the umbilicus, the folds a little protruding, a minute lump palpable, not knobby and projecting, but hard, asymmetrical, drawing the umbilicus inward or there may be a small, hard border below the umbilicus. In a few cases the cancer early developed a fistula. Primary cancer requires, of course, prompt removal, but a secondary cancer at the umbilicus generally contraindicates operative treatment unless hemorrhages or pain compel it. If a palliative operation is done, such as the gastro-enterostomy in the case reported, it is advisable to resect the umbilical tumor at the same time for obvious reasons.

54. **Tardy Gastric Pain with Chronic Ulceration.**—Boschi has encountered five cases of chronic gastric ulcer in which during the winter there were recurring attacks of painful spasm of the pylorus. Kouchew has reported four similar cases of trouble only in the winter and Murri has called attention to the gastric disturbances during the winter which sometimes accompany chlorosis. The explanation seems to be that the action of the cold on the nerve terminals and vasomotor nerves causes contraction of the superficial vessels, expelling the blood and forcing it inward to the viscera, causing congestion in the abdominal vessels. The weakest of the viscera—the stomach with a chronic tendency to ulcer in his cases—feels the effect of the congestion most severely. The congestion in the stomach causes the old ulcer to flare up anew, with irritation of the local nerves and reflex pylorospasm. The kidneys are liable to suffer by the same mechanism in winter if a predisposition exists.

Lyon Médical, Lyons

June 18, CXVI, No. 25, pp. 1101-1140

55 *[illegible] Eye in Treatment of Parenchy[illegible]lément.
56 [illegible] Simulating Gastric Cancer with [illegible] of the Prostate. Bouchut and Magdinier.

June 25, No. 26, pp. 1141-1200

57 Diastolic Hypotension and Hypertension. (Chute et pente diastoliques de la tension artérielle.) L. Gallavardin.

55. **Massage for Parenchymatous Keratitis.**—Grandclément has been advocating for nearly thirty years vigorous massage of the eye-ball applied for fifteen minutes ten or fifteen times a day, lubricating with a little salve so the eyelids can slide easier over the eye-ball. Done in this way he has been able to cure parenchymatous keratitis in seventy days unless there were pronounced Hutchinson teeth, in which cases the course required from ninety to a hundred days to accomplish the same results. If the leukocytes that have invaded the cornea in such quantities are left in peace, there is more or less blindness for months or years. But if with vigorous, constantly repeated massage the leukocytes are kept stirred up and mobilized, they are easily swept along by the circulating blood and the massage aids in developing the blood-vessels that flush out the leukocytes. During the entire course of treatment he keeps the pupil dilated with atropin to prevent any complications on the part of the iris, especially posterior synechia. The course may be completed or hastened by a few conjunctival injections of a 1 or 2 per cent. salt solution. He has never witnessed any benefit on the keratitis from iodid or mercury.

Berliner klinische Wochenschrift

July 10, XLVIII, No. 28, pp. 1265-1312

58 Breast Nursing During the Puerperium. (Stillen der Wöchnerinnen.) K. Franz.
59 Capacity for Breast Nursing. (Stillfähigkeit der Frau während der ersten Monate nach der Entbindung.) O. Heubner.
60 Volvulus of Cecum in Umbilical Hernia. M. Cohn.
61 Prophylactic Appendectomy? H. Wolff.
62 Spontaneous Rupture of Infected Spleen and Case of Perforating Abscess in the Spleen. (Zwei seltene milzchirurgische Fälle.) S. Johansson.
63 Value of Chlorophyl as Stain in Histologic and Other Research. (Ueber einen neuen Fettfarbstoff.) I. Boas.
64 Reinfection with Syphilis. (Reinfectio syphilitica oder Pseudoprimäraffekt?) C. Gutmann.
65 Syphilitic Anterior Poliomyelitis in Two Adults. A. Zadik.
66 Theory and Practice of Tuberculin Treatment of Tuberculosis. (Theoretische Grundlagen und praktische Ergebnisse der spezifischen Tuberkulosetherapie.) A. Wolff-Eisner.
67* Hour-Glass Stomach with and without Gastric Ulcer. (Ueber Ulcus penetrans ventriculi und Sanduhrmagen.) H. Strauss and S. Brandenstein.

67. **Hour-Glass Stomach With and Without Gastric Ulcer.**—Strauss and Brandenstein report three interesting cases to show the important information in regard to hour-glass stomach and other forms of spastic contraction in the digestive tract to be learned from examination with the Roentgen rays. In the first case a penetrating ulcer had entailed a slight perigastritis which had resulted in adhesions, drawing up the stomach and forming a loose fold projecting into the interior and producing the effect of an hour-glass stomach, although not actually obstructing the passage. The condition was suspected before the operation on account of the short distance to the right of the median line. They urge others to investigate this question as to the displacement to the left of a stomach with motor insufficiency in connection with symptoms of an ulcer as a sign of deforming perigastritis. In the second case the penetrating ulcer was found associated with a carcinoma opposite the protruding fold in the stomach. This case teaches that the Haudek symptom-complex—which was marked in this case—does not exclude cancer. In the third case the constriction in the stomach wall was occupied by a roll of muscle, the size of a pencil, which passed through the entire length of the groove, encircling the stomach, and there were no traces of carcinoma, ulcer or erosion; the trouble seemed to be merely a localized hypertrophy of the muscle tissue. There was no motor disturbance in this case, but the gastric secretion was deficient. The patient was a woman of 48 who had had gastric disturbances two years before and for nearly a year there had been spasms of pain in the stomach region, especially after eating, but sometimes fasting, with vomiting after meals and gradual loss of nearly 90 pounds in weight. The constricting cord of muscle could be palpated and it was resected with a strip of stomach wall. These cases suggest further that the discovery of the hour-glass stomach is just the beginning of the diagnosis.

Deutsche medizinische Wochenschrift, Berlin

July 13, XXXVII, No. 28, pp. 1297-1336

68 Tuberculin Free from Albumose in Treatment of Tuberculosis. (Behandlung der Tuberkulose mit dem Kochschen albumosefreien Tuberkulin.) G. Jochmann and B. Möllers.
69 Criteria of Anaphylactic Intoxication. A. Biedl and R. Kraus.
70 *Diagnostic Importance of Determination of Pepsin in the Urine in Stomach Disease. H. Scholz.
71 Scientific Bases for Training the Left Hand. (Wissenschaflichen Grundlagen der sogenannten "Linkskultur." H. Liepmann. Commenced in No. 27.
72 Case of Pulmonary Tuberculosis Simulating a Heart Defect. H. Rotky.
73 Improved Technic for Making Iodized Catgut. (Vereinfachung der Herstellung des trockenen Jodkatguts.) K. F. Herhold.

70. **Diagnostic Importance of Pepsin in the Urine with Gastric Cancer.**—Scholz reported recently that no pepsin was found in the stomach content or urine in his cases of uncomplicated gastric achylia while with gastric cancer and achylia

there was no pepsin in the stomach content but more or less peptic ferment was found in the urine. His statements, based on sixty-six cases, have been challenged by certain others but he reiterates here that renewed research, which he describes, has confirmed the accuracy of his first statements. Consequently he reaffirms that in dubious cases of gastric cancer strong presumptive corroborative evidence is afforded by the discovery of pepsin in the urine when the gastric juice after a test breakfast, is free from pepsin and this finding is confirmed also after a bouillon breakfast.

Medizinische Klinik, Berlin

July 9, VII, No. 28, pp. 1070-1108

74 *Epidemic Poliomyelitis in Guinea-Pigs. (Nachlese aus der experimentellen Erforschung der Poliomyelitis acuta.) P. H. Römer.
75 Treatment of Gastric Ulcer. (Ulcus ventriculi.) M. Tollkuhn.
76 Exercise of the Eyes in Bloodless Treatment of Strabismus. (Die unblutige Schielbehandlung.) T. Schultz-Zehden.
77 Study of Electric Injury. (Fall von Starkstromverletzung. Die Restitutionsreihe der körperlichen und geistigen Störungen.) E. Bischoff.
78 Roentgenoscope Research on the Heart. (Zur Röntgenuntersuchung des Herzens.) M. Levy-Dorn.
79 Action of Sulphur on the Skin. (Wirkung des Schwefels auf die Haut.) L. Golodetz.
80 Physiologic Catabolism of the Fatty Acids. (Neuere Versuche über den physiologischen Abbau der Fettsäuren.) E. Friedmann.

74. **Experimental Epidemic Poliomyelitis.**—Römer writes from the hygienic institute at Marburg of which von Behring is director to describe research on monkeys which has confirmed the fact that these animals are susceptible to acute poliomyelitis and that it is transmitted by the secretions of the nasopharynx and that a single attack confers immunity. He also states that he has succeeded in inducing a disease in guinea-pigs which strikingly resembles epidemic poliomyelitis in man, both in its clinical, etiologic, pathologic and histologic aspects. (The illustrated description of the affection in guinea-pigs has been published in the *Deutsche medizinische Wochenschrift*, 1911, xxxvii, 1209.)

Münchener medizinische Wochenschrift

July 11, LVIII, No. 28, pp. 1489-1544

81 Motor Functioning of the Colon. (Zur Physiologie und Pathologie der menschlichen Dickdarmbewegungen.) G. Schwarz.
82 Influence on Frog Blood-Vessels of Substances Released by Hemolysis. (Einfluss der bei der Hamolyse-freiwerdenden Substanzen auf überlebende Froschgefässe. (L. Hirschfeld and G. Modrakowski.
83 *Intravenous General Ether Anesthesia. R. Hagemann.
84 *Trypsin in Treatment of Surgical Tuberculosis. M. Brandes.
85 Ophthalmia Neonatorum Resembling Trachoma. (Ueber die dem Trachom des Erwachsenen analoge Bindehauterkrankung des Neugeborenen.) M. C. Wolfrum.
86 *Operative Treatment of Acute Ostitis of the Fibula. (Ueber subperiostale Diaphysenresektion bei Ostitis acuta purulenta fibulae.) M. Sulzer.
87 Intravenous Injection of [illegible] without Reaction Phenomena. W. [illegible]
88 Digalen Poisoning. (Ueb[illegible] F. Heydner.
89 Improved Tests for Ment[illegible] of Observation. (Einfacher Auffassungsapparat für den klinischen Gebrauch.) W. Cimbal.
90 Apparatus for Continuous Supply of Fluid at Same Temperature. (Apparat zur Infusion von Flüssigkeiten unter konstanter Geschwindigkeit.) W. Straub.
91 Two Years of the Movement for Infant Welfare. (Zwei Jahre offene Säuglingsfürsorge in Nürnberg.) E. T. J. Zeltner.

83. **Intravenous Ether Anesthesia.**—Hagemann reviews the experiences at the Greifswald surgical clinic, in charge of König, with intravenous injection of ether in a total of eleven cases. The patients submitted to this technic were those requiring operations on the mouth or face or in extreme cachexia. By mixing the ether with cold water and gradually warming over the water bath to 38 C. (100.4 F.) and keeping the fluid at this temperature, all excess of ether evaporates and a 4.68 per cent. solution results. From 1,050 to 3,925 c.c. of the solution were thus infused; there was no sign of thrombosis or embolism and he thinks that the technic is so free from danger that it is justified for the operations in which it offers superior advantages, especially those on the face. The infusion of such large amounts of fluid is also of advantage in much debilitated patients; the pulse was never weaker but often stronger after the anesthesia and there was no thirst.

84. **Trypsin in Treament of Surgical Tuberculosis.**—Brandes reports from Kiel considerable experience in this line. The results were not sufficiently promising to render the clinic disloyal to the old tried and tested 10 per cent. iodoform-glycerin treatment. This really is an indirect ferment therapy as it attracts the leukocytes to the spot.

86. **Subperiosteal Resection of Shaft for Ostitis of the Fibula.**—Sulzer has been comparing the ultimate outcome in a number of cases of acute purulent ostitis of the fibula treated by various methods. Seven cases are reported in detail as typical of the various experiences. In the cases in which treatment by subperiosteal resection of the shaft, the lesion healed promptly and permanently, while with the more conservative measures the affection dragged on tediously or recurred again and again. This resection of the shaft does not interfere with normal growth or functioning, while the prompt removal of the focus removes all danger of sepsis.

Therapeutische Monatshefte, Berlin

July, XXV, No. 7, pp. 405-464

92 *Organotherapy. C. Hirsch.
93 *Calcium Salts in Treatment of Tetany of Pregnancy. E Meyer.
94 Clinical Availability of Predigested Albumin. (Ueber die klinische Verwertbarkeit von tief abgebantem Eiweiss.) F. Frank and A. Schittenhelm.
95 *The Wassermann Reaction as Guide in Treatment of Syphilis. J. Citron.
96 Fatal Lysol Poisoning. (Lysolvergiftung mit Aspiration in die Luftwege und konsekutivem Empyem. Karbolverätzung der Luftwege mit tödlichem Ausgang.) A. Cahn.

92. **Organotherapy.**—Hirsch reviews the history of this branch of medicine from the days of Hippocrates and Celsius to the latest catalogues of the manufacturing chemists. While doing full justice to the achievements in this line, he thinks that in some respects now organ preparations are being carried to extremes, suggesting the absurdities of medieval apothecaries. He concludes with the remark that an effectual remedy against quackery is to be found in regulation of advertising, saying that the advertising of untested or nonsensical remedies and methods of treatment should be prohibited.

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Wiener klinische Wochenschrift, Vienna

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there was no pepsin in the stomach content but more or less peptic ferment was found in the urine. His statements, based on sixty-six cases, have been challenged by certain others but he reiterates here that renewed research, which he describes, has confirmed the accuracy of his first statements. Consequently he reaffirms that in dubious cases of gastric cancer strong presumptive corroborative evidence is afforded by the discovery of pepsin in the urine when the gastric juice after a test breakfast, is free from pepsin and this finding is confirmed also after a bouillon breakfast.

Medizinische Klinik, Berlin

July 9, VII, No. 28, pp. 1070-1108

74 *Epidemic Poliomyelitis in Guinea-Pigs. (Nachlese aus der experimentellen Erforschung der Poliomyelitis acuta.) P. H. Römer.
75 Treatment of Gastric Ulcer. (Ulcus ventriculi.) M. Tollkuhn.
76 Exercise of the Eyes in Bloodless Treatment of Strabismus. (Die unblutige Schielbehandlung.) T. Schultz-Zehden.
77 Study of Electric Injury. (Fall von Starkstromverletzung. Die Restitutionsreihe der körperlichen und geistigen Störungen.) E. Bischoff.
78 Roentgenoscope Research on the Heart. (Zur Röntgenuntersuchung des Herzens.) M. Levy-Dorn.
79 Action of Sulphur on the Skin. (Wirkung des Schwefels auf die Haut.) L. Golodetz.
80 Physiologic Catabolism of the Fatty Acids. (Neuere Versuche über den physiologischen Abbau der Fettsäuren.) E. Friedmann.

74. **Experimental Epidemic Poliomyelitis.**—Römer writes from the hygienic institute at Marburg of which von Behring is director to describe research on monkeys which has confirmed the fact that these animals are susceptible to acute poliomyelitis and that it is transmitted by the secretions of the nasopharynx and that a single attack confers immunity. He also states that he has succeeded in inducing a disease in guinea-pigs which strikingly resembles epidemic poliomyelitis in man, both in its clinical, etiologic, pathologic and histologic aspects. (The illustrated description of the affection in guinea-pigs has been published in the *Deutsche medizinische Wochenschrift*, 1911, xxxvii, 1209.)

Münchener medizinische Wochenschrift

July 11, LVIII, No. 28, pp. 1489-1544

81 Motor Functioning of the Colon. (Zur Physiologie und Pathologie der menschlichen Dickdarmbewegungen.) G. Schwarz.
82 Influence on Frog Blood-Vessels of Substances Released by Hemolysis. (Einfluss der bei der Hamolyse-freiwerdenden Substanzen auf überlebende Froschgefässe. (L. Hirschfeld and G. Modrakowski.
83 *Intravenous General Ether Anesthesia. R. Hagemann.
84 *Trypsin in Treatment of Surgical Tuberculosis. M. Brandes.
85 Ophthalmia Neonatorum Resembling Trachoma. (Ueber die dem Trachom des Erwachsenen analoge Bindehauterkrankung des Neugeborenen.) M. C. Wolfrum,
86 *Operative Treatment of Acute Ostitis of the Fibula. (Ueber subperiostale Diaphysenresektion bei Ostitis acuta purulenta fibulae.) M. Sulzer.
87 Intravenous Injection of [illegible] without Reaction Phenomena. W. [illegible]
88 Digalen Poisoning. (Uebe[illegible] F. Heydner.
89 Improved Tests for Ment[illegible] of Observation. (Einfacher Auffassungsapparat für den klinischen Gebrauch.) W. Cimbal.
90 Apparatus for Continuous Supply of Fluid at Same Temperature. (Apparat zur Infusion von Flüssigkeiten unter konstanter Geschwindigkeit.) W. Straub.
91 Two Years of the Movement for Infant Welfare. (Zwei Jahre offene Säuglingsfürsorge in Nürnberg.) E. T. J. Zeltner.

83. **Intravenous Ether Anesthesia.**—Hagemann reviews the experiences at the Greifswald surgical clinic, in charge of König, with intravenous injection of ether in a total of eleven cases. The patients submitted to this technic were those requiring operations on the mouth or face or in extreme cachexia. By mixing the ether with cold water and gradually warming over the water bath to 38 C. (100.4 F.) and keeping the fluid at this temperature, all excess of ether evaporates and a 4.68 per cent. solution results. From 1,050 to 3,925 c.c. of the solution were thus infused; there was no sign of thrombosis or embolism and he thinks that the technic is so free from danger that it is justified for the operations in which it offers superior advantages, especially those on the face. The infusion of such large amounts of fluid is also of advantage in much debilitated patients; the pulse was never weaker but often stronger after the anesthesia and there was no thirst.

84. **Trypsin in Treament of Surgical Tuberculosis.**—Brandes reports from Kiel considerable experience in this line. The results were not sufficiently promising to render the clinic disloyal to the old tried and tested 10 per cent. iodoform-glycerin treatment. This really is an indirect ferment therapy as it attracts the leukocytes to the spot.

86. **Subperiosteal Resection of Shaft for Ostitis of the Fibula.**—Sulzer has been comparing the ultimate outcome in a number of cases of acute purulent ostitis of the fibula treated by various methods. Seven cases are reported in detail as typical of the various experiences. In the cases in which treatment by subperiosteal resection of the shaft, the lesion healed promptly and permanently, while with the more conservative measures the affection dragged on tediously or recurred again and again. This resection of the shaft does not interfere with normal growth or functioning, while the prompt removal of the focus removes all danger of sepsis.

Therapeutische Monatshefte, Berlin

July, XXV, No. 7, pp. 405-464

92 *Organotherapy. C. Hirsch.
93 *Calcium Salts in Treatment of Tetany of Pregnancy. E Meyer.
94 Clinical Availability of Predigested Albumin. (Ueber die klinische Verwertbarkeit von tief abgebautem Eiweiss.) F Frank and A. Schittenhelm.
95 *The Wassermann Reaction as Guide in Treatment of Syphilis. J Citron.
96 Fatal Lysol Poisoni[illegible] .it Aspiration in die Luftwege und [illegible] Karbolverätzung der Luftwege mi[illegible] A. Cahn.

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Riforma Medica, Naples

July 3, XXVII, No. 27, pp. 729-756

109 Morphologic Changes in the Blood under Influence of Haloid Salts. A. Chistoni.
110 Chilling in Mechanism of Infections and Immunity. (Il raffreddamento nel meccanismo dei processi d'infezione e d'immunita.) D. De Sandro.
111 Influence of Pellagra on Digestive Secretions. (Di alcune azioni fermentative nella pellagra.) L. Preti and L. Pollini.

Norsk Magazin for Lægevidenskaben, Christiania

July, LXXII, No. 7, pp. 753-856

112 *Treatment of Fracture of the Radius. J. Nicolaysen.
113 *Acute Leukemia. K. Thue.
114 *Lumbago. V. Bülow-Hansen.
115 *Tearing Out of Tendon from Patella. (Dobbeltsidig avrivning av quadricepssenen fra patella.) E. Andersen.
116 *Nail Extension in Treatment of Fracture. (Avendelse av nagleextension.) R. Ingebrigtsen.
117 Iridotasis. (Dr. Johan Borthen's "forbedring.") S. Holth.

112. **Fracture of the Radius.**—Nicolaysen discusses the lessons learned from thirty-five cases of fracture of the radius and five of dislocation without actual fracture, emphasizing various points by the aid of twenty-eight radiographs. The outcome, he reiterates, depends on correct reposition of the fragments and on the age of the patients. The result was ideal in all his patients under the age of 50 while it was satisfactory in only three of the ten over this age. The outcome was especially poor in an elderly patient with deforming arthritis.

113. **Acute Leukemia.**—Thue reports three cases with necropsy and compares the findings with the various prevailing theories in regard to acute leukemia and with some similar cases on record. His patients were three boys, 1, 5 and 16 years old. The bacteriologic findings were constantly negative.

114. **Lumbago.**—Hansen warns that persons with a tendency to lumbago should refrain from cold baths and fatiguing exercises. He has encountered cases in which the lumbago developed in connection with a series of gymnasium exercises. The chief characteristic of lumbago, he remarks, is the tendency to recurrence. In some cases the trouble is an unsuspected fracture of the transverse process of some vertebra. In other cases he has been able to discover a tender point in the psoas iliacus muscle on one side, palpating down from the attachment of the muscle on the trochanter. When this is the case, attempts to flex the thigh against resistance are painful. The old lumbago is thus revealed as having its seat not in the back but in the front. This discovery threw retrospective light on a number of puzzling cases in his practice. As with sciatica, the spine frequently shows curvature from the affected side, the affected muscle being relaxed as with rheumatic torticollis. In some cases of lumbago there is accompanying neuralgia in the pelvis, especially in the sciatic nerve, and this should be regarded in treatment. He advises examination during a free interval, seeking for the almost inevitable tender point, and until treatment succeeds in restoring normal sensibility here, there is little prospect of a permanent cure. Rest and warmth are the main factors, and he has the patient apply a hot water bottle to the seat of the sensitive point on retiring, taking internally at the same time 0.5 or 1 gm. acetylsalicylic acid. In very severe cases the patient should stay in bed. An orthopedic corset may be found useful and this or a plaster cast is absolutely necessary in traumatic lumbago; it may save the patient much trouble and discomfort later. Massage of the tender points is a further aid in treatment, but it should be done by skilled hands on a systematic plan, and repeated at intervals during two or three months. It should be commenced very gently, as, done carelessly, it may do more harm than good. The massage is most effectual with the patient reclining or partially reclining, with flexed knees.

115. **Tearing Away of the Tendon from the Patella.**—Andersen has had three cases of this kind in his practice during the last few years, the tendon of the quadriceps being torn smoothly from the patella. The rupture occurred during a backward fall, the muscle pulling the tendon out from its attachment to the patella. Three of the patients were over 70 and he did not venture to open the joint and suture the tendon in all of them, but it proved successful in the cases in which it was done. In each of the cases the patients had suffered the same accident a few years before on the other knee. Two of the patients said they had no pain at the time of the rupture. The outcome is seldom good without suture of the tendon, whether a plaster cast and massage are applied or not.

116. **Nail Extension for Fracture.**—Ingebrigtsen reports excellent results from application of extension in a compound fracture of the leg with the stumps lapping so that the leg was shortened by 1½ inches. A 15-pound weight was suspended from a Becker nail driven through the bones just above the malleoli, and the leg gradually assumed its normal length in three days while there was no pain after the extension was applied.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

OBSTETRICS. Edited by Joseph B. De Lee, A.M., M.D., Professor of Obstetrics, Northwestern University Medical School, with the Collaboration of Herbert M. Stowe, M.D. Volume V, Practical Medicine Series. Under the General Editorial Charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Postgraduate Medical School, and Charles L. Mix, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School Series 1911. Cloth. Price, $1.25. Pp. 233, with illustrations Chicago: The Year-Book Publishers.

THE ETIOLOGY OF BERIBERI. By Henry Fraser, M.D. (Aber.), Director, Institute for Medical Research, and A. T. Stanton, M.D. (Tor.), Bacteriologist, Institute for Medical Research. No. 12. Studies from the Institute for Medical Research, Federated Malay States. Paper. Price, 7 shillings. Pp. 84, with illustrations. Singapore: Kelly & Walsh, 1911.

MANUAL OF PSYCHIATRY. By J. Rogues de Fursac, M.D., Formerly Chief of Clinic at the Medical Faculty of Paris. Translated and Edited by A. J. Rosanoff, M.D., Second Assistant Physician, Kings Park State Hospital, N. Y. Third Edition. Cloth. Price, $2.50 net. Pp. 484. New York: John Wiley & Sons, 1911.

MEDIZINAL-BERICHTE ÜBER DIE DEUTSCHEN [illegible] Deutsch-Ostafrika, Kamerun, Togo, [illegible] Guine[illegible] Inseln, [illegible] Jahr [illegible] Von Reichs-Kolonialamt. Paper. Pp. 649. [illegible] Mittler und Sohn, 1911.

TWENTY-SEVENTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF THE STATE OF RHODE ISLAND, for the Year Ending Dec. 31, 1904. And Including the Report on the Registration of Births, Marriages and Deaths in 1903. Cloth. Pp. 304. Gardner T. Swarts, Secretary.

ONE HUNDRED SURGICAL PROBLEMS. The Experiences of Daily Practice Dissected and Explained. By James G. Mumford, M.D., Visiting Surgeon to the Massachusetts General Hospital. Cloth. Price, $3. Pp. 354. Boston: W. M. Leonard, 1911.

TRANSACTIONS OF THE FORTY-FIRST ANNUAL SESSION OF THE MEDICAL SOCIETY OF VIRGINIA, Held in Norfolk, Va., Oct. 25-28, 1910. Paper. Pp. 632. Dr. Paulus A. Irving, Secretary, Farmville.

New Patents

Recent Patents of Interests to Physicians

984,879.	Invalid bed frame. Joseph A. Bartholome, Baltimore.
984,539.	Obtaining soluble and coagulatable proteid composition. Henri L. J. Chavassieu, Lyons, France.
984,756.	Surgical forces. Paul Frisch, Berlin, Germany.
984,822.	Evaporating solutions. Samuel M. Lillie, Philadelphia.
984,619.	Surgical atomizer. Andrew Truesdale and W. S. Virgin, Washington, D. C.
984,722.	Composition yielding ozone. Alexander H. Twombly, Summit, N. J.
985,500.	Atomizer. Georges Baujard, Paris, France.
985,505.	Spray nozzle. Lewis A. Brinkman, Chicago.
985,350.	Disinfecting device. James Kneen, Oakland, Cal.
985,354.	Poison bottle cork. Robert A. Leet, Oakland, Cal.
985,547.	Electromagnetic massage device. Edmund H. Pryce, New York.
985,303.	Medicinal powder toller. John Toskov, Little Neck, N. Y.
985,559.	Preparing bismuth betanaphtholate. Joseph L. Turner, Philadelphia.
985,306.	Cot attachment for invalid beds. John C. Van Slyke, Fort Collins, Colo.
985,307.	Attachment for invalid beds. John C. Van Slyke, Fort Collins, Colo.
986,263.	Aspirating syringe. Cheves Bevill, Waldron, Ark.
986,618.	Medical apparatus. Edmund A. Babler, St. Louis.
986,999.	Crutch. Charles E. Kritsch, Washington, D. C.
986,738.	Breast evacuator. Hattie F. Milligan, Cambridge, Mass.
986,650.	Means for supporting stretchers in ambulances. Jesse T. Sheets, Covington, Ky.

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THE ADVANTAGES OF THE SO-CALLED DECORTICATION OF THE LUNG IN OLD EMPYEMA *

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In operating for an old empyema we are presented with the problem of closing an old, suppurating cavity with stiff, unyielding walls, the inner wall consisting of the lung with its thick covering of fibrous tissue and fibrin, the other wall being the wall of the chest cavity. It is obvious that to enable such an abscess cavity to close, either the bony framework must be removed from the chest wall, so that it may sink in against the lung, or the thick fibrous covering must be removed from the lung and the lung expanded so as to come in contact with the chest-wall, or a combination of these two methods must be affected. The old mutilating process, with which the names of Estländer and Schede are connected, consists of extensive multiple resection of the ribs, with or without the removal of the intercostal muscles, allows the skin of the chest and soft parts to fall in against the lung, and has for many years been known to present grave objections. In the first place, the mutilation was extensive, the operation was accompanied by a good deal of trauma, hemorrhage and shock, features which rendered it especially dangerous in patients weakened and exhausted by the chronic suppuration of an old empyema. In the second place, if it was performed in children during the growing period, the extensive removal of the chest wall would hardly fail to result in a curvature of the spine which, from lack of support of the ribs on the affected side would accentuate itself as the child grew and would be accompanied by increasing deformity.

In 1893, De Lorme in France and Fowler in America both hit on an operation which was designed to substitute for the mutilating operations of Estländer and Schede, and was planned to allow the lung to expand against the chest-wall, instead of letting the chest-wall fall in against the lung; this operation came to be called decortication of the lung. De Lorme noted that in old empyema the shrunken, contracted lung lay in the gully between the ribs and vertebra, covered and bound down by a thick, inelastic membrane consisting of partly organized fibrin and fibrous tissue. He thought that if a sufficiently large opening in the chest were made for the manipulations, and if this membrane were incised and peeled off the lung and removed, the lung might expand and fill the chest cavity, thus obviating the necessity of extensive removal of the chest-wall in order to accomplish his object. He cut a square flap, including the third to the sixth ribs, the base being at the anterior border of the scapula, the upper and lower margins following the ribs, and turned it backward in the soft parts as a hinge. He found the lung lying in the costovertebral angle, the lower surface of the cavity being the vault of the diaphragm, and the cavity extending to the apex of the lung. The parietal pleura was bound down with a membrane 1 to 1.5 cm. thick. He found the position of the lung impossible to define, it was so bound down by this membrane. He incised the membrane a hand's breadth behind the anterior chest-wall, in order to avoid the pericardium, going cautiously to avoid injuring the lung, using first the knife, then blunt scissors. On coming to the healthy lung, he enlarged the incision, peeled off the membrane and as the patient coughed, the middle lobe of the lung protruded through the opening, reached the chest-wall and even projected through the window he had made in it. This was repeated for the other lobes of the lung. After excising the visceral pleura, curetting and excising portions of the parietal pleura, the flap was put back and sutured around a drainage tube in the lower angle. He concludes, (1) that it is possible to free a lung from the membrane, which holds it down even long after an operation for empyema; (2) that the method is applicable not only on the right, but on the left, if one goes far enough behind; and (3) that this is better than Estländer's operation, because it expands and tends to restore the function of an otherwise useless lung. The great deformity and falling in of the chest-wall may be avoided. This, in young patients, might lead to spinal curvature.

At about the same time Fowler[1] of Brooklyn, operated on a woman, 35 years of age, who had a persistent sinus. He removed three and a half inches of five or six ribs and excised a mass of cicatricial ti[illegible]e sinus, and attached to the chest, [illegible]-cardium and lung. Hemorrhage was stopped by gauze pressure. There was considerable shock after the operation. The cavity was tamponed with gauze. The tampon was removed in twenty-four hours and a lighter one substituted. The cavity was irrigated and the gauze changed every day. The lung expanded and the cavity was closed in twenty-eight days. Thus, Fowler, with no special plan, apparently, of allowing the lung to expand by removal of the tough, fibrous covering, had at about the same time with De Lorme performed this operation. It seems to me that the credit of the operation should belong to De Lorme as he, apparently, had a definite plan to accomplish what he was after. To

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* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

* Owing to considerations of space, the case reports are here omitted. They are given entire in the Transactions of the Section and in the author's reprints, a copy of which will be sent by the author or by THE JOURNAL on receipt of a stamped addressed envelope.

[1] Fowler: Med. Rec., Dec. 30, 1903.

this valuable procedure of Fowler and De Lorme, has been applied the clumsy name of "decortication," from the Latin *cortex*, bark, meaning literally, barking or peeling off the bark from the lung. It is not, therefore, as a new procedure that I venture to take up this subject for discussion, but rather for the reason that so little has been written about it that I fear some of us may forget what a valuable resource it is and may, unnecessarily, perform severe mutilating operation when this simple operation would be safer and more effective.

Looking over the literature since that time, comparatively few reports of this operation are to be found. The same is true in regard to the operations of Estländer and Schede. I believe the reason for this to be, that in the primary operation for empyema, resection of the rib and provision of adequate drainage at the proper point has resulted in the cure of so many cases that few chronic cases result. Among the few reports in literature of the results of lung decortication, Charles M. Dowd[2] of New York, reports excellent results from decortication in old empyema in children. Ransohoff,[3] however, finds fault with the results of lung decortication, advising instead of decortication, the making of multiple incisions in the thickened pleura, thus allowing the lung to expand at numerous points. It does not seem to me that this method of multiple incisions can ssibly be as efficient as the free and complete removal e membrane and, as in my hands the free and com- removal of the membrane has been efficient, I ght it worth while to report my experience, which w amounts to seven cases.

Samuel Lloyd[4] of New York, who has had a very large experience in the treatment of empyema, chiefly in children, in a very interesting article given at the twenty-fifth anniversary of the New York Post-Graduate Medical School, states that in the treatment of old empyema it is not necessary to remove the pulmonary pleura, but simply to break up the adhesions at the borders of the cavity between the parietal and visceral pleura. This is undoubtedly true in early cases, and I believe that such adhesions should at the first operation of draining an empyema be so broken up. In the older cases, however, in which the membrane is thick, firm and rubber-like, it will easily be seen that it will be thickest and firmest at the point of attachment to the chest wall, so that it would be more difficult to break it at this point than where I have done it, namely, at a vertical line starting about the middle of the bottom of the cavity and extending upward along the lung. It is possible also that the lung might expand with this great, heavy, thick piece of membrane left on it. In the early cases, the lung would probably expand whatever is done to it, but in the old cases with this great, thick, leathery piece of membrane, the expansion of the lung could hardly be as complete and uniform from having its adhesions broken up at the edges, as it would from slitting it up in the middle and entirely separating it. Anybody who has felt with the finger and seen the wonderful expansion of the lung after the removal of this membrane, which is not a difficult procedure, will hardly advocate, in cases in which the membrane has any thickness at all, the method of simply breaking up the adhesions at the edges and leaving it on.

I think Lloyd's contribution to the subject is of great value, in that he emphasizes the point of removing at the primary operation a piece of more than one rib, if necessary, in order to get in more than two fingers to break up adhesions to the pleura, and this procedure was adopted in Case 7 of my series of cases, and I shall adopt it more often in the future. It cannot be said, however, to be absolutely essential in the early cases, and in the late cases I do not think it can be as satisfactory as the removal of the thick, leathery membrane or the old procedure of decortication.

In an experience of eighteen years at the Boston City Hospital, where I have operated in a fairly large number of cases of empyema, mostly, however, acute, although greatly interested in the question of lung expansion in these old cavities, I had no opportunity to operate for chronic empyema until April, 1907. This case, which was, briefly, that of a little girl of 14, who had had a sinus for a year, after the resection of the ninth rib in the posterior axillary line. I carried an incision upward, parallel to the anterior border of the scapula, resected portions of four ribs and found exposed a concave surface of the glistening membrane which bound the lung down in the gutter between the ribs and vertebra, so tightly that it hardly seemed as if there was any lung in the chest at all. On splitting this membrane with the scissors and separating it carefully from the surface of the lung, the lung began to expand and when the child coughed at the close of the operation the red, velvety lung blew up like a soap bubble and came up against the chest-wall, where it remained. The lower angle of the wound was drained. At first there was no discharge, until four or five days after when there was a slight discharge from the breaking down of the blood-clot which ran into the bottom of the chest. I show here pictures (Figs. 1 and 2) of the little girl four years later, after she had grown to be a young lady, and it can be seen that the chest-wall is excellently developed and there is no curvature of the spine.

The second case in which I employed this procedure was an old empyema following an extensive hemorrhage into the chest, hemothorax, resulting from a self-inflicted revolver wound. The patient had a sinus and a chronic discharge ten months after rib resection, for drainage of the infected blood-clot from his chest. In this case the same procedure was followed, the incision running upward and forward from the anterior end of the drainage incision. Five ribs were resected, the thick membrane covering the lung incised and peeled off with the finger, allowing the lung to expand. As the patient coughed, the lung expanded and nearly filled the cavity. A slight discharge persisted, and five months later I found a small cavity two inches in diameter, in the lower part of the chest which was cured by resecting a small portion of the rib. One month later, the wound healed up and has remained in excellent condition since. The patient was a thin, delicate man, who I feel sure would not have survived an extensive operation of the type of Estländer or Schede.

My next cases, 3, 4 and 5, were the result of what I believe to be misguided attempts to cure acute empyema by the method of Thiersch, advocated by Friedrich when he came to this country and spoke before this Association in 1898. He states that rib resection has been abandoned by him in recent, not circumscribed exudates, because, not here necessarily indicated, it requires a longer time and may be more dangerous through the onset of a pneumothorax.

Briefly stated, the method of Thiersch consists of a puncture of the chest-wall, insertion of a large trocar allowing the pus to escape, and the insertion of a Nelaton catheter of the same size as the trocar to which is attached a collapsible rubber tube which leads into a bottle of fluid at the side of the bed. The Nelaton catheter is fixed air-tight to the chest-wall by the use of rubber tissue and adhesive plaster. The theory is, that when the patient expires, the pus runs out through the tube and on inspiration the collapsible walls of the tube are sucked together and prevent the entrance of air and cause negative pressure in the chest, favoring expansion of the lung. This is one of the numerous methods of securing negative pressure in the chest, the first of which, I believe, was adopted by Bülau; the others have been advocated by Perthes, Van Hook, and numerous other writers. In many of them, a current of running water supplied by a Bunsen pump, is employed to cause constant suction of the chest. The use of all these methods is based on what seems a well-founded objection in methods of rib resection and leaving a wide opening, namely, that such an opening allows the free entrance of air into the chest, which tends to press on the surface of the lung to prevent its expansion resulting in chronic pneumothorax and chronic empyema. The last, and probably the most efficient, of these suction methods is that advocated by Robinson of Boston, which consists in trephining the rib and screwing in a threaded metal tube, to which the rubber tube is attached, thus furnishing an absolutely air-tight connection between the chest-wall and the tube. The objection to all these methods, to my mind, is that, while they do provide an air-tight connection for a very short time, the opening made is necessarily small and the masses of fibrin which are so often found in the cavities cannot be removed, and when the tube has finally to be removed, as it always has, the small opening closes over so quickly that a little pus is apt to be left behind, and the case becomes chronic or requires reoperation.

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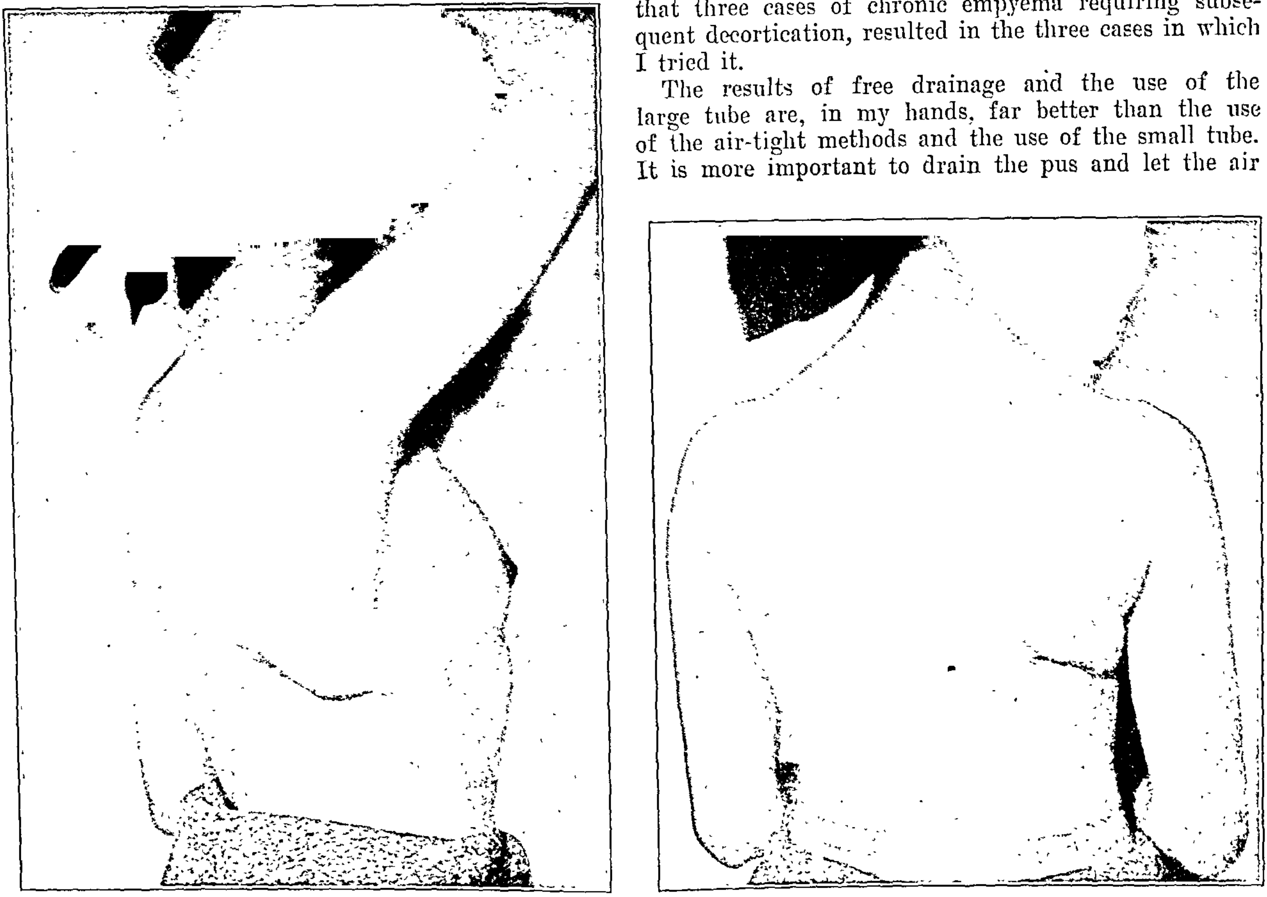
[2] Clinical News, September 1902.

[3] Ransohoff: Ann. Surg., 1906.

[4] Lloyd, S.: The Treatment of Unresolved Pneumonia, in Science of Medicine and Surgery, 1908, p. 177.



Figs. 1 and 2.—Patient, 18 years old, four years after operation for chronic empyema. Note the development of chest-wall and the fact that there is no curvature of spine.

As stated above, in an experience covering eighteen years and a fairly large number of cases, I have almost invariably treated empyema by resection of two or three inches of the ninth or tenth ribs in the posterior axillary line and the insertion of a large tube. Doubtless, in some of these cases, the lesions have failed to heal and have become chronic, but at all events, patients have not come back to me for treatment. It is an interesting commentary on Thiersch's method, at least in my hands, that three cases of chronic empyema requiring subsequent decortication, resulted in the three cases in which I tried it.

The results of free drainage and the use of the large tube are, in my hands, far better than the use of the air-tight methods and the use of the small tube. It is more important to drain the pus and let the air take care of itself than to try to keep out the air at the expense of free drainage of the pus and fibrin. No matter if the air does enter the thorax at first, it is frequently soon prevented from entrance by the pressure of the thick pus-soaked dressing over the end of the tube, which in itself provides a very fair valve, and I believe that the expansion of the lung is more frequently prevented from the reaccumulation of pus from insufficient drainage than by the entrance of air through a large opening.

Patient 3 was a man of 34, on whom Thiersch's method of drainage was attempted in January, 1910. Seven weeks later he had a free discharge and a large cavity treated by resection of five ribs and decortication. The cavity was of good size, entirely lined by thick, tough membrane. The membrane was split vertically over the lung and peeled back and the cavity partially filled it. The patient went home one month after the operation with a sinus, went to work and worked for nearly a year, but returned January, 1911, with a reaccumulation of pus and a large cavity. I operated again and this time found the membrane very adherent to the surface of the lung which failed to expand after its removal, therefore an extensive resection was done to six ribs allowing the chest-wall to fall in on the lung. A few days later, the patient died of septicemia. Although the decortication in this case was not successful, I feel that, had an extensive rib resection been done in the first place, the patient would have died just one year sooner. The patient had valvular heart disease.

In Case 4 the empyema was drained by Thiersch's method, except that rib trephining was adopted instead of trocar puncture. Six weeks later, after the discharge from the hospital, however, the patient returned with his chest full of pus again and a sinus. In this case, the sinus was on the left side of the chest, and the incision in the membrane for decortication had to be carefully made behind the pericardium. The lung expanded and filled the cavity. Two large tubes, surrounded by gauze, were placed in the lower angle of the wound for drainage. There was very little shock. The gauze and tubes were all removed on the second day, and all the drainage was removed on the eleventh. The patient made an excellent recovery and regained complete expansion of the lung without deformity of the chest or curvature of the spine.

In Case 5, the patient was a delicate man, 20 or 21 years of age. Thiersch's method was applied in a metapneumonic empyema. Three weeks later the patient was running a high temperature; drainage was unsatisfactory and there was a large cavity. Decortication was performed as in the preceding cases. The lung, as in the former cases, came out and filled the cavity. This operation was attended by a good deal of shock. The temperature gradually returned to normal. The lung, however, did not in this case stay up against the chest-wall, and the patient began to have cough and expectoration. He died six weeks after the decortication, apparently of pneumonia of the opposite lung. He was thought by consultants to have tuberculosis, but no tuberculous bacilli were found in the sputum and no autopsy was obtained. In this case, also, although the result was unsatisfactory, I cannot but feel that a more promptly fatal result would have followed an extensive removal of the ribs.

Patient 6 was a middle-aged woman in whom, contrary to my usual custom, a rib resection had been made in the midaxillary line, thus failing to provide adequate drainage in the recumbent and sitting positions. Chronic empyema resulted and decortication was done six months later by the method previously described. The lung expanded well and recovery, though delayed by the slipping in of a drain which was inserted by the physician in charge during convalescence, was complete as soon as this drain was removed at the third operation.

The seventh case was one of abscess of the lung with pyopneumothorax which had existed six weeks and in which, at the primary operation, the lung was found so bound down and covered by the thick membrane that it was thought wise to decorticate it at the time. The operation was completely successful, and the patient made a rapid decovery. A crater-like ulcer on the surface of the inferior lobe was, to my mind, a very interesting finding.

It will be seen that two of these seven cases were fatal. Neither of them, however, was fatal from shock, and I think the same result would have followed any method of treatment.

Beck's method of filling chronic empyema sinuses with bismuth paste has not seemed to me applicable in cases with very large cavities, say two-thirds or three-quarters of the entire pleura and, personally, I have had rather poor results with the insertion of any kind of foreign material in an infected cavity.

In regard to the technic of the operation, the method of the resection of 1½ inches of five or six ribs, through an incision running upward and forward from the anterior end of the old drainage incision, has proved, to my mind, very satisfactory. In slitting up the thickened pleura beneath the ribs, I have had in one or two cases, to grab the intercostal artery, but have been very much surprised to find how little trouble there has been from bleeding. The visceral pleura, which is about a quarter of an inch thick and which is more like the sole of an old rubber shoe than anything else, is carefully incised with a knife over the lower part of the lung. The finger is inserted through the incision and as soon as the soft surface of the lung is felt, is swept to and fro with the pulp of the finger toward the pleura and pressing outward so as to cause the least possible damage to the lung. Then a pair of blunt-pointed scissors is inserted and the membrane slit clear up to the top of the chest, and cleared off from the lung with the finger. A wound of one or two of the air-cells resulted in two or three of my cases, allowing the escape of bubbles of air on exploration, but so small an area of the lung was affected that, apparently, no harm resulted.

In regard to the after-treatment, it is probable that after the patient is put to bed, the lung does retract to a certain extent, but the occasional coughing keeps up the expansion. The thick, pus-soaked dressing, if tightly applied, to my mind, acts as a more efficient valve than any mechanical valve which one could employ. Certainly, in most of my cases, expansion of the lung was marvelously preserved, and in Case 5 I think that failure may have been due to the dressing failing to give us an efficient valve. Change of dressing should be accomplished as rapidly as possible and the tubes removed early; in most instances, I think, on the second or third day.

In the majority of cases, the lung is driven inward so that it extends from the top to the bottom of the chest and at its base is adherent to the diaphragm. This adhesion to the diaphragm, in this class of cases, will have to be broken up in addition to the removal of the membrane covering the lung. In some of the cases, however, the lung, instead of being driven in, is driven both inward and outward, so that it lies contracted along the upper inner wall of the pleura. In these cases, removal of the membrane covering it will be entirely sufficient and there will be no diaphragmatic adhesions to be attended to.

It is possible that an intercostal incision and the use of the modern rib retractor may simplify this operation, but as the incision in the pleura has got to be in the long axis of the lung, it seems to me that multiple rib resection would be better. I have not had an opportunity to employ either positive or negative pressure as an aid in these operations and do not believe that it is necessary if, as should always be done, the ether is taken off as early as possible, and the patient allowed to cough at the moment that the membrane has been stripped off the lung. This facilitates expansion in a wonderful manner. The intratracheal insufflation method of Melzer and

Auer, I believe, will be a distinct aid in these lung cases. One feature which renders it valuable is that it is possible to blow all the ether out of the lung with fresh air at the close of the operation, so that the patient almost immediately comes out. I have not had an opportunity to employ this method myself as yet, but intend to do so at the earliest opportunity. My colleague, Dr. Nichols, has employed this method in one case of decortication and states that he was astonished at the way the lung expanded and filled the cavity when the visceral pleura was removed. His patient made an excellent recovery.

527 Beacon Street.

PLASTIC OPERATIONS ON THE FACE*

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Surgical operations are usually designed to save life or to increase function. Even plastic operations on other parts of the body than the face have as their chief object the restoration of function. Operations on the vaginal outlet are performed for the purpose of correcting malpositions of the uterus or of returning the bladder and rectum to their proper position and so rendering these organs better able to functionate normally. Plastic operations on the hands or feet for deformities, on the bowel or bladder for fistulous openings, or on the throat or mouth for congenital defects, are intended to restore to usefulnss the parts affected. Plastic operations on the face, however, are done chiefly for their cosmetic effect, as the function of no organ is materially altered by the facial deformities which such operations are designed to correct.

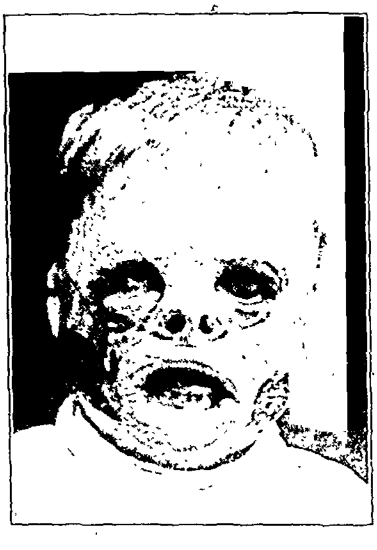

Fig. 1.—J. M., aged 10. Deformity of the face from burn; from photograph taken two days before first operation.

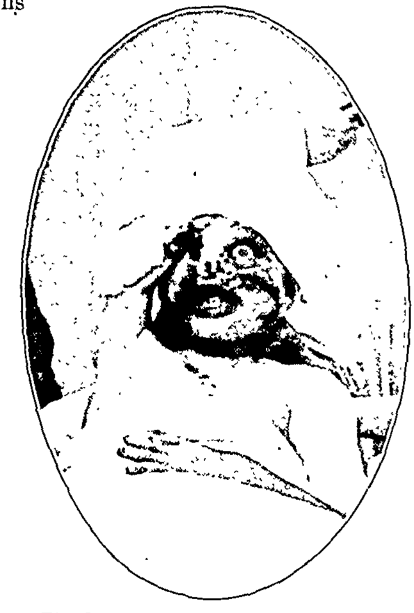

Fig. 2.—J. M., after lower lip and part of the uper lip had been formed from a flap taken from the left shoulder and arm. A flap is now being transferred from his right arm to cover the right eye. The eyelashes have been shaved and the eyelids closed by suture so the flap is transplanted over both lids at one time.

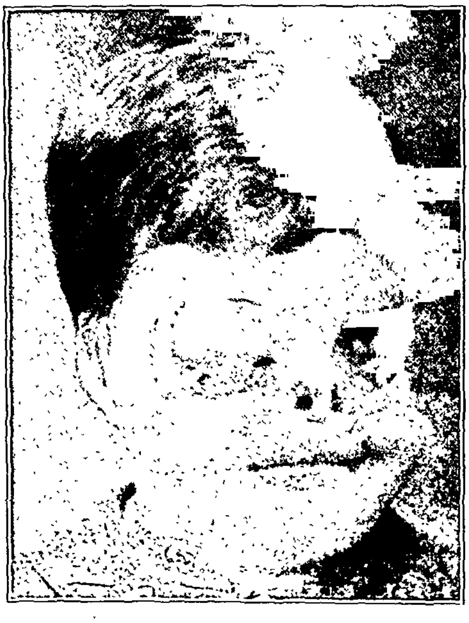

Fig. 3.—Patient J. M. a few days after flap had been cut from its base on the arm.

While the correction of facial deformities cannot be classed as life-saving, such procedures when successful benefit not only the patient, but the community. An operation for appendicitis, for instance, may save an individual life, but usually few outside of the patient's friends and relatives care anything about it. But the surgeon who corrects a cicatricial contraction about the face or operates on a bad double harelip should have the gratitude of every one who has had to see these unfortunate patients, and is at least as much of a public benefactor as the proverbial philanthropist who causes two blades of grass to grow where only one grew before.

This branch of surgery, then, has to do with improving the patient's personal pulchritude, and the length of the incision, the position of the scar, and the coaptation of the skin are of prime importance instead of being as in most operations matters of secondary consideration. Herein plastic operations on the face differ both in technic and in results from other surgery.

Deformities which make plastic operations on the face necessary may be classed under three heads: First, congenital deformities, of which the most common is harelip; second, deformities produced by injury or disease, which may be subdivided into contractions following ulcers or burns and mechanical trauma; third, deformities that result from operations for removal of cancer or lupus. This third group differs somewhat from the second. Though it may be said to occur as the result of disease, the immediate defect is one that has been purposely made by the surgeon under aseptic precautions and, in a manner, he may control the character of the defect. No operation for cancer should ever be done with any other object in view than complete extirpation of the cancerous mass; still at times the incisions may be so shaped as to make a resulting wound that will not leave an unsightly scar while sacrificing nothing to thoroughness.

Without attempting to give a detailed report of cases, I shall describe some operations and results that may serve to illustrate the second two of these three different classes of cases that have been grouped under the heading of plastic operations on the face.

Deformities produced by disease, and particularly by burns, are peculiar from their marked tendency to con-with a sinus, went to work and worked for nearly a year, but returned January, 1911, with a reaccumulation of pus and a large cavity. I operated again and this time found the membrane very adherent to the surface of the lung which failed to expand after its removal, therefore an extensive resection was done to six ribs allowing the chest-wall to fall in on the lung. A few days later, the patient died of septicemia. Although the decortication in this case was not successful, I feel that, had an extensive rib resection been done in the first place, the patient would have died just one year sooner. The patient had valvular heart disease.

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* Read by invitation at the meeting of the South Carolina Medical Association, Charleston, S. C., April 19, 1911.

In Case 4 the empyema was drained by Thiersch's method, except that rib trephining was adopted instead of trocar puncture. Six weeks later, after the discharge from the hospital, however, the patient returned with his chest full of pus again and a sinus. In this case, the sinus was on the left side of the chest, and the incision in the membrane for decortication had to be carefully made behind the pericardium. The lung expanded and filled the cavity. Two large tubes, surrounded by gauze, were placed in the lower angle of the wound for drainage. There was very little shock. The gauze and tubes were all removed on the second day, and all the drainage was removed on the eleventh. The patient made an excellent recovery and regained complete expansion of the lung without deformity of the chest or curvature of the spine.

In Case 5, the patient was a delicate man, 20 or 21 years of age. Thiersch's method was applied in a metapneumonic empyema. Three weeks later the patient was running a high temperature; drainage was unsatisfactory and there was a large cavity. Decortication was performed as in the preceding cases. The lung, as in the former cases, came out and filled the cavity. This operation was attended by a good deal of shock. The temperature gradually returned to normal. The lung, however, did not in this case stay up against the chest-wall, and the patient began to have cough and expectoration. He died six weeks after the decortication, apparently of pneumonia of the opposite lung. He was thought by consultants to have tuberculosis, but no tuberculous bacilli were found in the sputum and no autopsy was obtained. In this case, also, although the result was unsatisfactory, I cannot but feel that a more promptly fatal result would have followed an extensive removal of the ribs.

Patient 6 was a middle-aged woman in whom, contrary to my usual custom, a rib resection had been made in the midaxillary line, thus failing to provide adequate drainage in the recumbent and sitting positions. Chronic empyema resulted and decortication was done six months later by the method previously described. The lung expanded well and recovery, though delayed by the slipping in of a drain which was inserted by the physician in charge during convalescence, was complete as soon as this drain was removed at the third operation.

The seventh case was one of abscess of the lung with pyopneumothorax which had existed six weeks and in which, at the primary operation, the lung was found so bound down and covered by the thick membrane that it was thought wise to decorticate it at the time. The operation was completely successful, and the patient made a rapid decovery. A crater-like ulcer on the surface of the inferior lobe was, to my mind, a very interesting finding.

It will be seen that two of these seven cases were fatal. Neither of them, however, was fatal from shock, and I think the same result would have followed any method of treatment.

Beck's method of filling chronic empyema sinuses with bismuth paste has not seemed to me applicable in cases with very large cavities, say two-thirds or three-quarters of the entire pleura and, personally, I have had rather poor results with the insertion of any kind of foreign material in an infected cavity.

In regard to the technic of the operation, the method of the resection of 1½ inches of five or six ribs, through an incision running upward and forward from the anterior end of the old drainage incision, has proved, to my mind, very satisfactory. In slitting up the thickened pleura beneath the ribs, I have had in one or two cases, to grab the intercostal artery, but have been very much surprised to find how little trouble there has been from bleeding. The visceral pleura, which is about a quarter of an inch thick and which is more like the sole of an old rubber shoe than anything else, is carefully incised with a knife over the lower part of the lung. The finger is inserted through the incision and as soon as the soft surface of the lung is felt, is swept to and fro with the pulp of the finger toward the pleura and pressing outward so as to cause the least possible damage to the lung. Then a pair of blunt-pointed scissors is inserted and the membrane slit clear up to the top of the chest, and cleared off from the lung with the finger. A wound of one or two of the air-cells resulted in two or three of my cases, allowing the escape of bubbles of air on exploration, but so small an area of the lung was affected that, apparently, no harm resulted.

In regard to the after-treatment, it is probable that after the patient is put to bed, the lung does retract to a certain extent, but the occasional coughing keeps up the expansion. The thick, pus-soaked dressing, if tightly applied, to my mind, acts as a more efficient valve than any mechanical valve which one could employ. Certainly, in most of my cases, expansion of the lung was marvelously preserved, and in Case 5 I think that failure may have been due to the dressing failing to give us an efficient valve. Change of dressing should be accomplished as rapidly as possible and the tubes removed early; in most instances, I think, on the second or third day.

In the majority of cases, the lung is driven inward so that it extends from the top to the bottom of the chest and at its base is adherent to the diaphragm. This adhesion to the diaphragm, in this class of cases, will have to be broken up in addition to the removal of the membrane covering the lung. In some of the cases, however, the lung, instead of being driven in, is driven both inward and outward, so that it lies contracted along the upper inner wall of the pleura. In these cases, removal of the membrane covering it will be entirely sufficient and there will be no diaphragmatic adhesions to be attended to.

It is possible that an intercostal incision and the use of the modern rib retractor may simplify this operation, but as the incision in the pleura has got to be in the long axis of the lung, it seems to me that multiple rib resection would be better. I have not had an opportunity to employ either positive or negative pressure as an aid in these operations and do not believe that it is necessary if, as should always be done, the ether is taken off as early as possible, and the patient allowed to cough at the moment that the membrane has been stripped off the lung. This facilitates expansion in a wonderful manner. The intratracheal insufflation method of Melzer and

Auer, I believe, will be a distinct aid in these lung cases. One feature which renders it valuable is that it is possible to blow all the ether out of the lung with fresh air at the close of the operation, so that the patient almost immediately comes out. I have not had an opportunity to employ this method myself as yet, but intend to do so at the earliest opportunity. My colleague, Dr. Nichols, has employed this method in one case of decortication and states that he was astonished at the way the lung expanded and filled the cavity when the visceral pleura was removed. His patient made an excellent recovery.

527 Beacon Street.

PLASTIC OPERATIONS ON THE FACE*

J. SHELTON HORSLEY, M.D.
Professor of Principles of Surgery and Clinical Surgery in the Medical College of Virginia; Surgeon to Memorial Hospital
RICHMOND, VA.

Surgical operations are usually designed to save life or to increase function. Even plastic operations on other parts of the body than the face have as their chief object the restoration of function. Operations on the vaginal outlet are performed for the purpose of correcting malpositions of the uterus or of returning the bladder and rectum to their proper position and so rendering these organs better able to functionate normally. Plastic operations on the hands or feet for deformities, on the bowel or bladder for fistulous openings, or on the throat or mouth for congenital defects, are intended to restore to usefulness the parts affected. Plastic operations on the face, however, are done chiefly for their cosmetic effect, as the function of no organ is materially altered by the facial deformities which such operations are designed to correct.

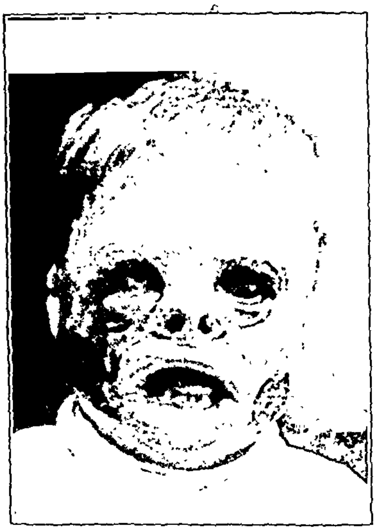

Fig. 1.—J. M., aged 10. Deformity of the face from burn; from photograph taken two days before first operation.

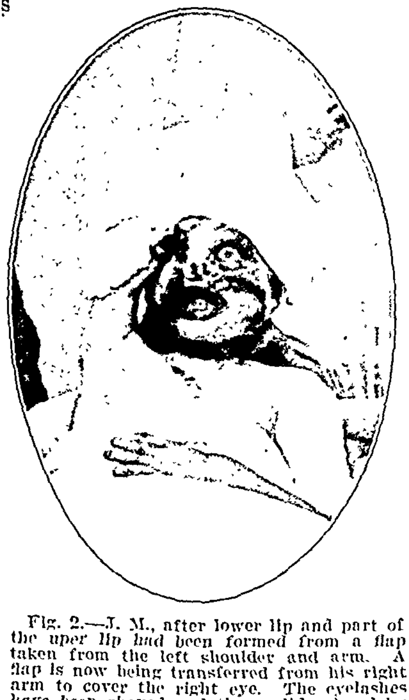

Fig. 2.—J. M., after lower lip and part of the uper lip had been formed from a flap taken from the left shoulder and arm. A flap is now being transferred from his right arm to cover the right eye. The eyelashes have been shaved and the eyelids closed by suture so the flap is transplanted over both lids at one time.

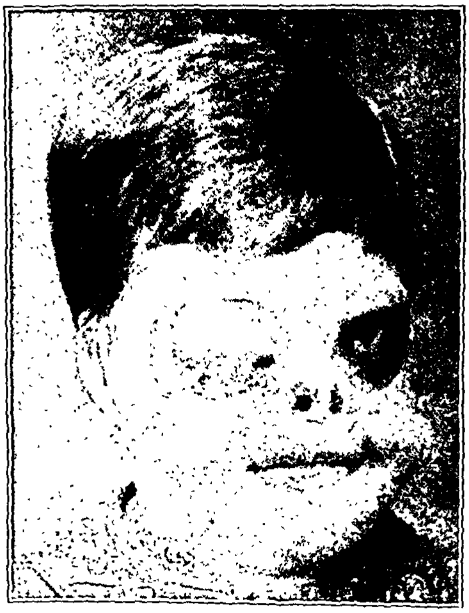

Fig. 3.—Patient J. M. a few days after flap had been cut from its base on the arm.

While the correction of facial deformities cannot be classed as life-saving, such procedures when successful benefit not only the patient, but the community. An operation for appendicitis, for instance, may save an individual life, but usually few outside of the patient's friends and relatives care anything about it. But the surgeon who corrects a cicatricial contraction about the face or operates on a bad double harelip should have the gratitude of every one who has had to see these unfortunate patients, and is at least as much of a public benefactor as the proverbial philanthropist who causes two blades of grass to grow where only one grew before.

This branch of surgery, then, has to do with improving the patient's personal pulchritude, and the length of the incision, the position of the scar, and the coaptation of the skin are of prime importance instead of being as in most operations matters of secondary consideration. Herein plastic operations on the face differ both in technic and in results from other surgery.

Deformities which make plastic operations on the face necessary may be classed under three heads: First, congenital deformities, of which the most common is harelip; second, deformities produced by injury or disease, which may be subdivided into contractions following ulcers or burns and mechanical trauma; third, deformities that result from operations for removal of cancer or lupus. This third group differs somewhat from the second. Though it may be said to occur as the result of disease, the immediate defect is one that has been purposely made by the surgeon under aseptic precautions and, in a manner, he may control the character of the defect. No operation for cancer should ever be done with any other object in view than complete extirpation of the cancerous mass; still at times the incisions may be so shaped as to make a resulting wound that will not leave an unsightly scar while sacrificing nothing to thoroughness.

Without attempting to give a detailed report of cases, I shall describe some operations and results that may serve to illustrate the second two of these three different classes of cases that have been grouped under the heading of plastic operations on the face.

Deformities produced by disease, and particularly by burns, are peculiar from their marked tendency to contraction. Thiersch's grafts do not prevent contraction after a burn. The effort by Nature to reproduce a corium results in reformation of cicatricial tissue and while the raw surface may be covered by the epithelium of the grafts the contraction recurs in time as bad as it was before. The whole thickness of the skin must be transplanted in places where contraction is to be avoided. This may be done by the Krause or by the Wolfe method of transplanting strips of the whole thickness of the skin taken from the thigh or other portions of the body. As these strips require more nourishment than the thin Thiersch grafts the pieces have to be smaller, as the vessels may enter and nourish a small strip of skin, whereas a larger piece would die. This method cannot be used satisfactorily in extensive deformities produced by burns about the face, as the scars that form between the strips are very unsightly. A boy, whose picture I present (Figs. 1 to 5), was burned by the explosion of a keg of powder about six months before he came under my treatment. Contraction was so great that the mouth could not be closed and saliva constantly dripped over his clothing. There were raw ulcers on the cheeks which would not heal and the eversion of the eyelids from the contraction gave the patient a most repulsive appearance. The lips were freed and the scar tissue dissected away down to the muscles. Care must be taken in such cases to dissect away all of the connective tissue and at the same time not to go deep enough to injure the filaments of the facial nerve. The lips were built up by a flap taken from the arm and shoulder,

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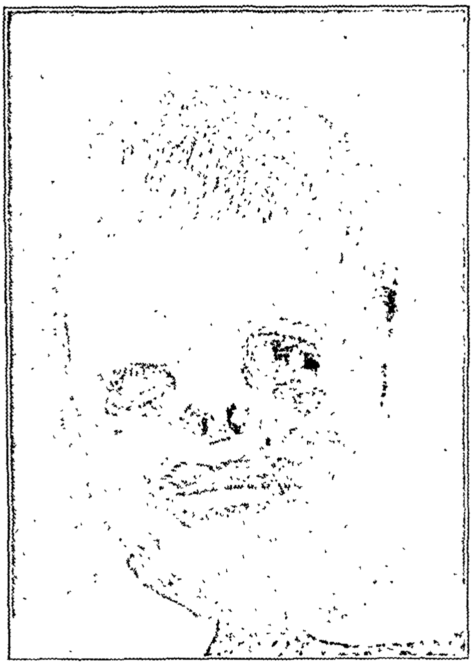

Fig. 4.—J. M.; flap over the eyes has been divided and stitches removed. The upper eyelids were satisfactory, but there was not enough of tissue on lower lid to prevent eversion. Another flap was taken, which is shown in Figure 5.

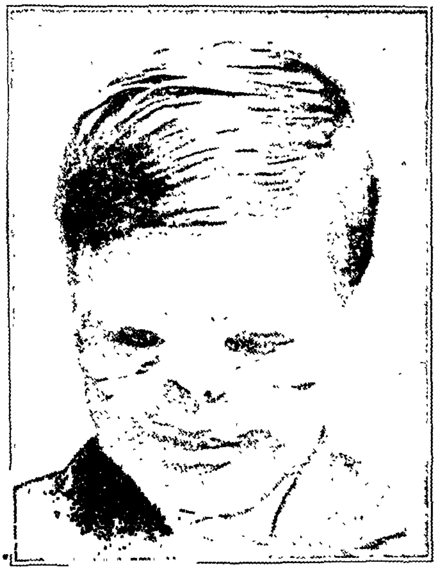

Fig. 5.—Patient J. M. after twenty operations had been performed on him. Both upper and lower eyelids have been satisfactorily built up from flaps from the arm and by Wolfe's grafts from the thigh.

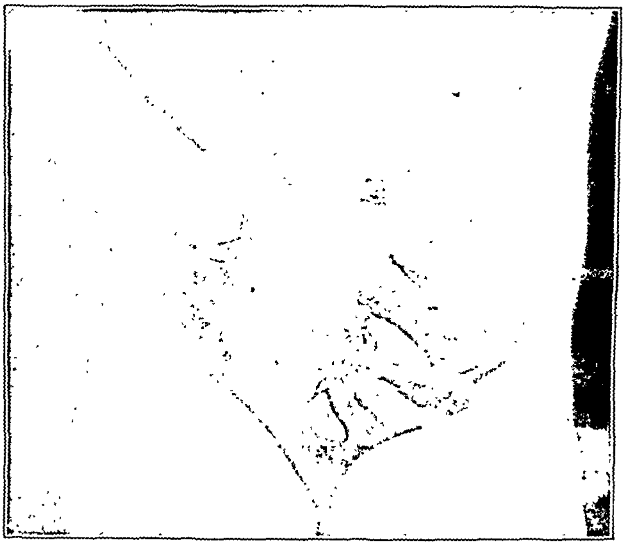

Fig 6.—Method of using skin from the back of the hand for correcting deformities and remedying defect on hand by replacing whole skin from the abdomen.

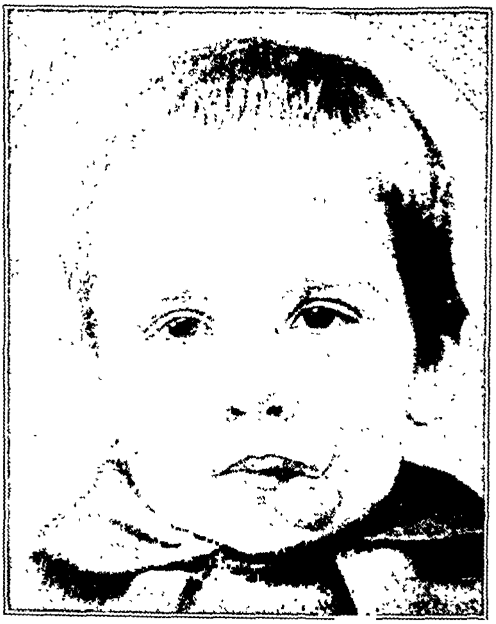

Fig. 7.—R. E. Noma following typhoid fever. The left half of lower lip, mucous membrane a[illegible] of jaw-bone sloughed away, so the under[illegible] ould be seen through defect. The *photograph* [illegible] *operation in* which lip was built up by a quadrilateral flap from the cheek which was turned into the defect.

which was sutured in position with the base of the flap attached to the arm and the arm fixed over the head for ten days with plaster of Paris. The base of the flap was then cut away. After a long series of operations the deformities were mostly overcome. They were remedied chiefly by taking flaps from various portions of the arm in the manner just described and partly by transplanting whole pieces of skin to fill out small defects. Flaps of skin may be transplanted from any portion of the body by first attaching them to the hand, then cutting away the flap and transplanting this to the face or by first using the skin on the back of the hand and then covering the defect in the hand with whole skin from the abdomen (Fig. 6).

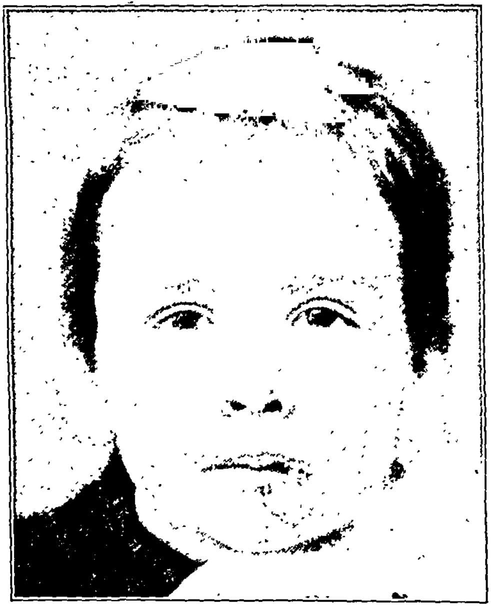

Fig. 8.—R. E., from photograph taken soon after a flap of mucous membrane was raised and attached to the newly constructed lip to form a vermilion border.

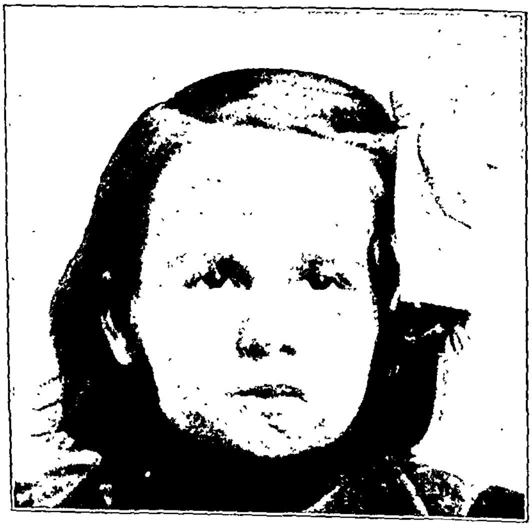

Fig. 9.—R. E., from a photograph taken about one year after second operation.

Diseases such as noma produce very unsightly defects and are best corrected by transplanting flaps from the immediate neighborhood if possible. In one case (Figs. 7, 8 and 9) half of the lower lip with the underlying bone and mucous membrane sloughed away as the result of noma. This was repaired by a quadrilateral flap from the cheek, which was turned into the defect. Later a flap of mucous membrane from the inside of the lip formed a very satisfactory vermilion border. In such instances the problem of contraction does not materially affect the result.

Another case (Figs. 10 and 11) presents a rather unusual deformity which resulted from a fracture of the frontal bone and a sloughing away of the anterior wall of the frontal sinus. This left a marked defect which exposed the frontal sinus and made a deep cavity in the forehead. After finding that the communication between the floor of the frontal sinus and the nose was open, two small flaps were turned in from the margins of the defect so that the skin surface formed the anterior wall of the frontal sinus. This corrected the depression and a U-shaped flap taken from the forehead covered the raw surface of the flaps that had been turned in. The defect left by this flap was corrected by undermining the skin and sliding it over. The result is shown in Figure 11.

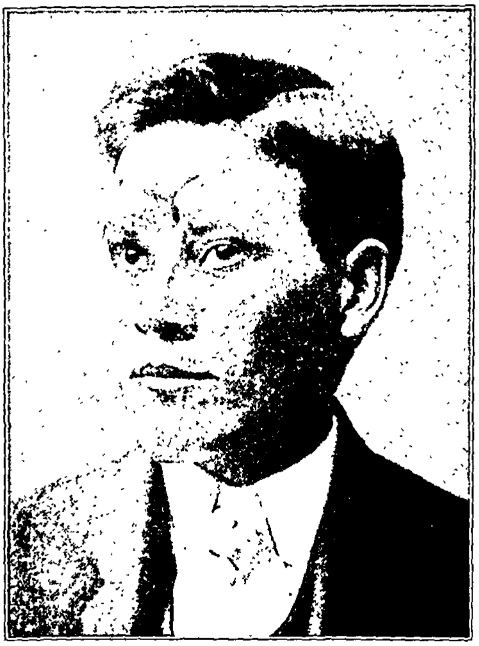

Fig. 10.—E. W. S., from photograph taken before operation, showing defect following fracture of frontal bone and sloughing away of anterior wall of frontal sinus.

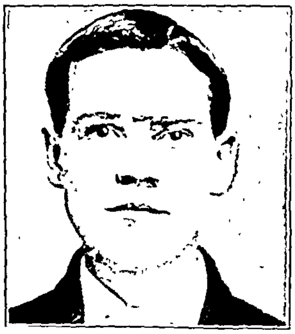

Fig. 11.—E. W. S., from photograph taken about eight months after operation.

The principles which might be said to underlie plastic operations of the face are, first of all, a careful mapping out of the procedures necessary to correct the deformity traction. Thiersch's grafts do not prevent contraction after a burn. The effort by Nature to reproduce a corium results in reformation of cicatricial tissue and while the raw surface may be covered by the epithelium of the grafts the contraction recurs in time as bad as it was before. The whole thickness of the skin must be transplanted in places where contraction is to be avoided. This may be done by the Krause or by the Wolfe method of transplanting strips of the whole thickness of the skin taken from the thigh or other portions of the body. As these strips require more nourishment than the thin Thiersch grafts the pieces have to be smaller, as the vessels may enter and nourish a small strip of skin, whereas a larger piece would die. This method cannot be used satisfactorily in extensive deformities produced by burns about the face, as the scars that form between the strips are very unsightly. A boy, whose picture I present (Figs. 1 to 5), was burned by the explosion of a keg of powder about six months before he came under my treatment. Contraction was so great that the mouth could not be closed and saliva constantly dripped over his clothing. There were raw ulcers on the cheeks which would not heal and the eversion of the eyelids from the contraction gave the patient a most repulsive appearance. The lips were freed and the scar tissue dissected away down to the muscles. Care must be taken in such cases to dissect away all of the connective tissue and at the same time not to go deep enough to injure the filaments of the facial nerve. The lips were built up by a flap taken from the arm and shoulder,

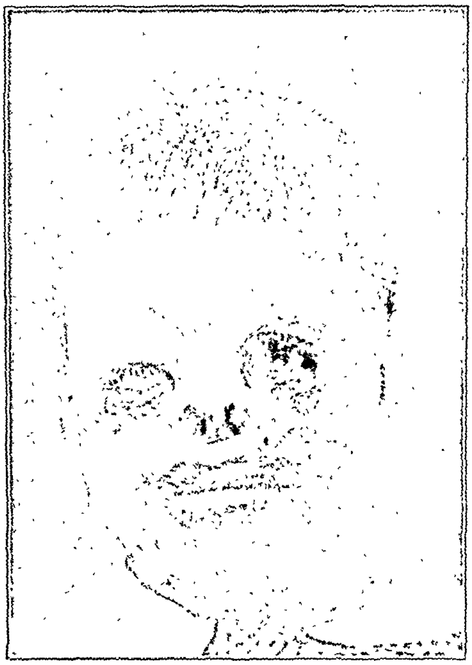

Fig. 4.—J. M.: flap over the eyes has been divided and stitches removed. The upper eyelids were satisfactory, but there was not enough of tissue on lower lid to prevent eversion. Another flap was taken, which is shown in Figure 5.

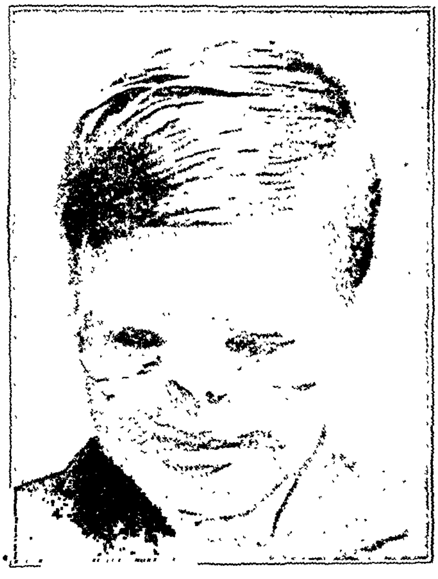

Fig. 5.—Patient J. M. after twenty operations had been performed on him. Both upper and lower eyelids have been satisfactorily built up from flaps from the arm and by Wolfe's grafts from the thigh.

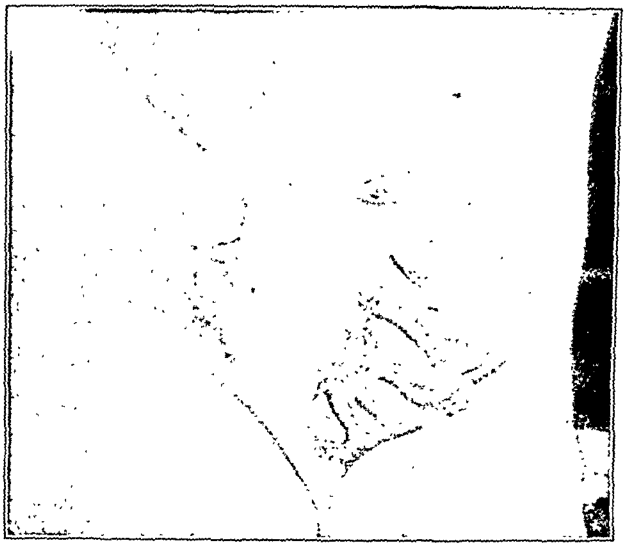

Fig. 6.—Method of using skin from the back of the hand for correcting deformities and remedying defect on hand by replacing whole skin from the abdomen.

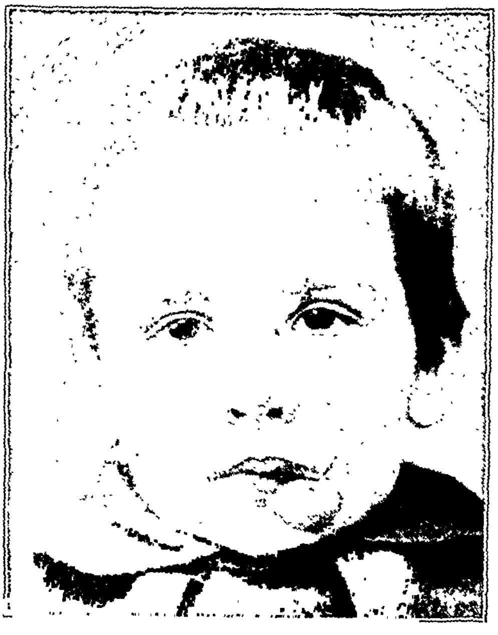

Fig. 7.—R. E. Noma following [illegible]. The left half of lower lip, mucous membrane and underlying portion of jaw-bone sloughed away, so the under surface of tongue could be seen through defect. The photograph was taken after first operation in which lip was built up by a quadrilateral flap from the cheek which was turned into the defect.

in each case. Asepsis cannot be maintained and prompt healing will occur only when the tissue is properly nourished and gently handled. Rough handling or lack of consideration for the nutrition of the flaps will result disastrously no matter how accurately the defect is covered. The flaps should always be taken a little larger than seems necessary, particularly in remedying deformities resulting from burns. No dressing should be placed on these wounds unless there is considerable bleeding; in this case a dry compress may be used for twenty-four hours and should then be removed. The raw surface should be dusted with boric acid powder, which forms a scab, and usually quick healing results. If a dressing is put on these wounds the secretion from the nose, mouth or eyes will be absorbed by the dressing and a septic poultice results, whereas antiseptic scabs are formed by incorporation of antiseptic powder into the coagulated serum and the wound is soon sealed and protected from the air. The suturing should be accurate, not tight enough to constrict, but tight enough to approximate the surfaces closely. I use a fine curved reversed Hagedorn needle and fine silk, which leaves the most inconspicuous scar. Where tension is great silkworm-gut is employed as the main suture for harelip operations. Sutures should be removed as soon as possible. In harelip where there is considerable strain on the stitches they have to be left longer than in operations where there is no tension, but here some of the stitches can be removed in six days and all should be out within eight or nine days. In other locations the stitches can usually be removed in five days. No plaster or other dressing should ever be placed on the harelip wound, but relief of tension on the sutures can be secured by two strips of adhesive plaster, which run from the cheek across the nose to the opposite side of the forehead. When these are drawn tightly, complete relaxation of the upper lip is obtained.

421 West Grace Street.

A METHOD FOR GRADUAL AUTOMATIC OCCLUSION OF THE LARGER BLOOD-VESSELS AT ONE OPERATION *

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SPOKANE, WASH.

Stimulated by the work of Halsted and Matas, I and my assistants recently undertook some experiments with the object of working out a method for the gradual automatic occlusion of the larger blood-vessels at one operation.

Halsted used aluminum bands on the arteries for the purpose of permanently occluding their lumina, completely or in part, while Matas employed them for testing the efficiency of the collateral circulation. In neither of these methods, however, nor in any other that we know of, is there any definite and well-directed attempt to bring about gradual automatic occlusion in one operation, the thing above all others needed in arterial surgery for the treatment of aneurysm and tumors involving the great vessels.

It was for the purpose of establishing a principle, which might be at least a step toward the solution of this problem, that we devised the clamp described below. In the larger number of our experiments, we used the clamp called Model 2 (shown in Figures 1, 2 and 3), because of its simplicity of construction and application. It consists of two pieces of sheet aluminum, No. 13 B. & S. sheet metal gauge, hinged at one end as shown in Figure 1. For the common carotid artery of the dog, each blade is 5/16 inch wide and 7/8 inch long. The edges of the opposing surfaces of the blades are carefully rounded off, so that they will not injure the vessel which passes through the space (*c*) of the clamp. The deep groove (*f*) in the end of each blade, is for the catgut which is wound in layers in one or both of them and serves to separate the blades after the clamp is applied to the vessel. The short set-screw (*c*) was incorporated in the clamp in the early part of the work, for the purpose of preventing the blades from coming together, and thus cutting through the vessel after the catgut was absorbed. We now consider the set screw unnecessary and believe that gradual complete occlusion and division of the vessel is the ideal result.

The grooves (*d*) next to those for the catgut are for a rubber elastic band, the purpose of which is to approximate the two blades during the gradual absorption of the catgut. The elastic, therefore, must be of the very best dental ligature material to tolerate encapsulation under tension for a prolonged period of time.

Next to the hinge (*a*) are the shallow grooves (*b*) for a second rubber band. The object of this band is not so much to draw the blades together as to prevent the artery from slipping into the narrow part of the clamp next to the hinge. Figure 2 shows the clamp on the flat with grooves for the rubber bands and catgut.

Figure 3 shows the clamp with artery (*c*), rubber bands (*b* and *d*) and catgut (*e*) in position.

APPLICATION

The application is exceedingly simple. The clamp and rubber bands are sterilized by boiling, and No. 1 plain sterile catgut is wrapped in the end groove of one of the blades. This must be carefully done, three or four layers being placed one on the other in the groove. The ends of the gut are then tied together on the outer surface of the blade. The clamp is now applied to the artery and the blades pressed together as closely as the catgut will permit. If the pulsation distal to the clamp is markedly weakened, the latter is removed and two or three layers of gut wrapped in the end groove of the other blade. The clamp is again applied to the artery (Fig. 3), and two turns of No. 9 dental elastic band (*d*) are placed around both blades in the groove. A section of small-sized rubber tubing or a single turn of No. 9 elastic band (*b*) is slipped over the hinged end, the muscles and fascia then sutured with catgut over the clamp and the operation is complete.

MODUS OPERANDI

The principle underlying the action of the clamp is the gradual absorption of the catgut between the ends of the blades and the consequent gradual automatic approximation of these blades by the elastic bands. The artery in the grasp of the clamp is necessarily gradually occluded as the blades come together, the occlusion taking place so slowly that the collateral circulation has an opportunity to develop. After the catgut has completely absorbed and the blades are together, all tissue in the grasp of the clamp undergoes pressure atrophy and is absorbed. This we consider an ideal result: the vessel cut in two and occluded by the clamp, each of the ends tapering to a point and united by a cord of firm fibrous tissue.

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* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

We have learned from our experiments that the catgut is entirely absorbed in from three to four weeks and that the ideal result mentioned above is obtained in the majority of cases.

We do not know whether the portion of catgut between the blades is actually absorbed or slips out layer by layer, coincident with the absorption of each layer on the surface. The same result, however, is brought about in either case, viz., the gradual approximation of the two blades, by the rubber band as each successive layer of gut is absorbed.

Model 1 (shown in Figure 4), with catgut wound around the ends of one or both blades, or decalcified bone between the blades, transfixed by a pin to prevent its displacement, was used in most of our early experiments. The rubber elastics have practically the same arrangement as in Model 2, except that there are no definite grooves for them or the catgut. We believe that catgut is superior to decalcified bone as a separating agent, because it can be applied to the blades in layers, thus giving greater assurance of gradual absorption. A decided advantage of Model 2 is the deep groove for the catgut. This deep groove (*f*, Figure 1), with the end flange partly filed off, gives a narrow shank on which to wind the gut, affording a minimum surface between the blades, where absorption is slow and uncertain, and a maximum outer surface where absorption readily occurs.

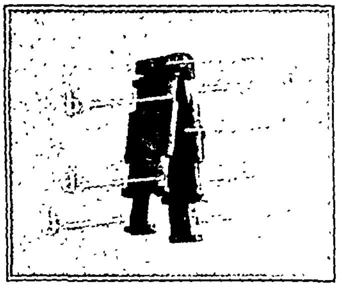
Fig. 1.—Clamp model 2; a, hinge; b, groove for rubber band; c, space for artery; d, groove for rubber band; e, set screw; f, groove for catgut.

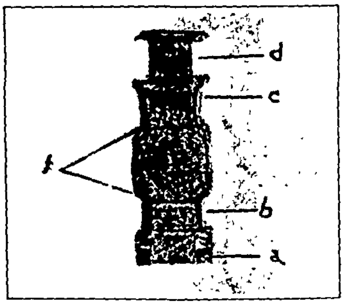

Fig. 2.—Clamp model 2; a, hinge; b, groove for elastic band; c, groove for elastic band; d, groove for catgut; f, space for artery.

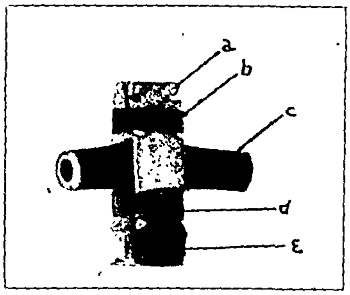

Fig. 3.—Clamp model 2; a, hinge; b, rubber elastic; c, artery; d, rubber elastic; e, catgut wound around one blade.

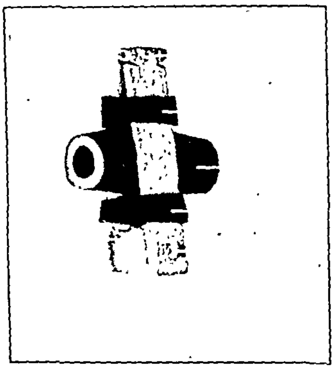
Fig. 4.—Clamp model 1; a, hinge; b, rubber band; c, artery; d, rubber band; e, pin through decalcified bone; f, decalcified bone.

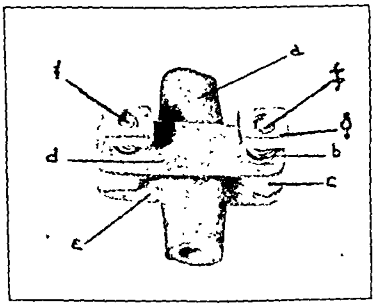

Fig. 5.—Clamp model 3; a, artery; b, spiral spring; c, decalcified bone; d and e, blades of clamp.

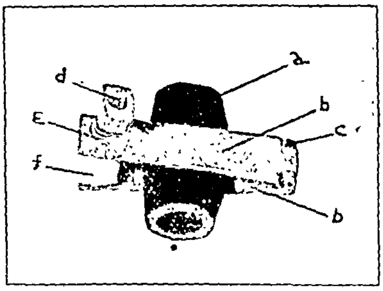

Fig. 6.—Clamp model 4; a, artery; b, blades of clamp; c, hinge; d, curve pin transfixing bone; e, spiral spring; f, decalcified bone.

When decalcified bone is used the underlying principle is exactly the same as with catgut; the bone is gradually absorbed and allows the blades to slowly come together.

Model 3 (illustrated in Figure 5) was used in only one experiment, so we have not had sufficient experience with it to draw conclusions as to its use. It consists of two separate blades (*d* and *e*), the opposing edges of which are rounded off to prevent cutting of the vessel. To the under blade (*e*) are fixed two upright threaded posts (*f*) which pass through two corresponding perforations in the upper blade (*d*). Two pieces of sterile decalcified bone (*c*) of proper thickness, are drilled and placed one on each of the upright posts (*f*) next to the blade (*e*). This blade is now put under the artery so that the latter occupies the position (*a*) shown in the illustration. The upper blade (*d*) is then placed in position and a small spiral spring (*b*) slipped over each of the upright posts (*f*). Now by screwing the nuts (*g*) into position, the upper blade (*d*) is pressed firmly against the decalcified bone (*c*), and as the latter is gradually absorbed, it will be slowly approximated to the blade (*e*). The disadvantages of this clamp are that it is complicated and occupies much more room than Model 2. Catgut can be used on each of the posts instead of decalcified bone.

Model 4 (shown in Figure 6) was used in only one case; it seems to possess no advantage over the simpler models, 1 and 2. A glance at the illustration will show that the working principle is the same, but instead of the rubber bands a spiral spring (*e*) is used to approximate the two blades. Magnesium, which is slowly absorbed by the tissues, can be used in the construction of the clamp instead of aluminum.

We have used the clamps in thirty-four experiments on dogs, twenty-seven times on the common carotids, five times on the aorta and twice on the femorals. Four of the aorta subjects died, one from general peritonitis, one from hemorrhage, one from double pyonephrosis, and one from secondary hemorrhage plus infection. Of the thirty remaining cases, complete occlusion was found at second operation in twenty-two, partial occlusion in seven and none at all in one.

Plain sterile catgut was used on one or both blades of the clamp in twelve cases and was completely absorbed after thirty and one-half days (average) in eleven cases. In the remaining case all of it was absorbed, except a very s[illegible]ween the blades. Iodin catgut, after [illegible] was used in fifteen cases and was found completely absorbed after twenty-eight days (average) in only three. Of the remaining twelve cases, it was in various stages of partial absorption in eleven, and showed no evidences of absorption in one.

Of the fourteen cases of complete absorption there was only one in which the vessel was not entirely occluded, the cause of failure in this one being too great separation of the blades by the set-screw.

In the cases in which the iodin catgut was only partly absorbed, it had been in the tissues, on an average, thirty-three days for each experiment.

Decalcified bone was used in three of the thirty experiments. In two cases it was completely absorbed after thirty-five days and in one, only a small fragment remained after twenty-four days. In only one of the thirty cases was there secondary hemorrhage and that was due to injury

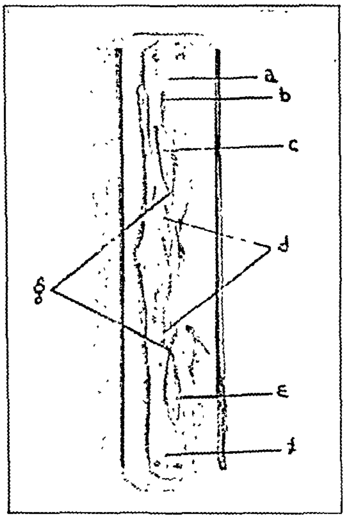

Fig. 7.—Dog 12; left common carotid. Exp. 1; a, above occlusion; b, collateral; c, clot; d, fibrous tissue between occluded ends; e, clot; f, below occlusion; g, occluded ends of artery.

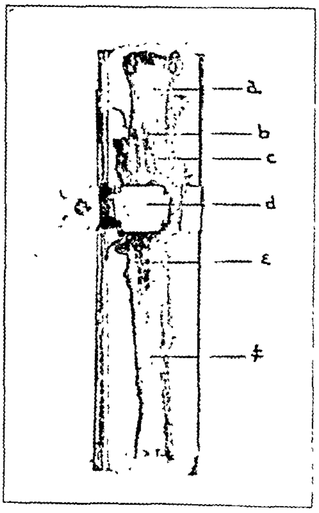

Fig. 8.—Dog 13; right common carotid. Exp 2; a, artery above occlusion; b, collateral; c, clot; d, clamp in place; e, clot; f, artery below occlusion.

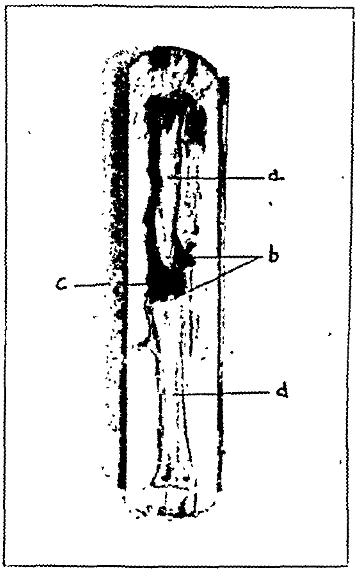

Fig. 9.—Dog 13; left common carotid. Exp. 3; a, above occlusion; b, occluded ends; c, portion of artery in grasp at clamp; d, below occlusion.

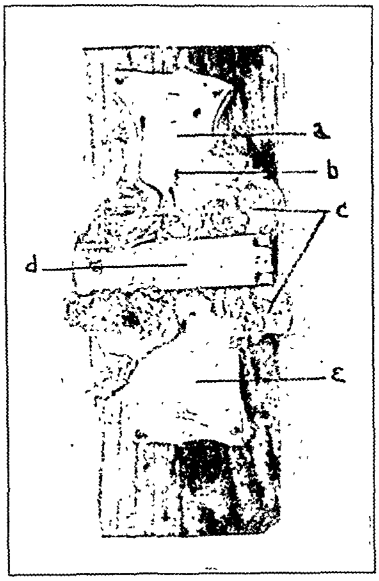

Fig. 10.—Dog 16; aorta. Exp. 6; a, above occlusion; b, collateral; c, fibrous capsule around clamp; d, clamp in position; e, below occlusion.

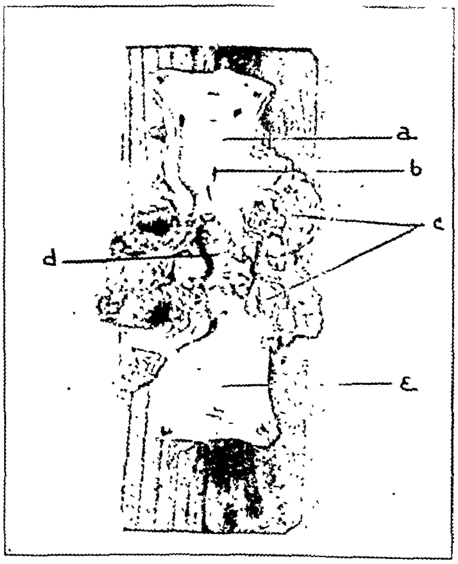

Fig. 11.—Dog 16; aorta. Exp. 6; a, aorta above occlusion; b, collateral; c, fibrous capsule around clamp; e, below occlusion; f, fibrous tissue between occluded ends.

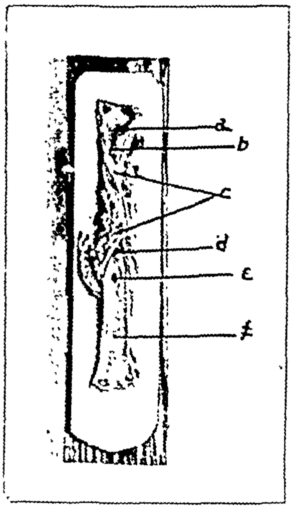

Fig. 12.—Dog 18; left common carotid. Exp. 9; a, above occlusion; b and d, occluded ends of artery; c, fibrous tissue between occluded ends; e, collateral; f, below occlusion.

REPORT OF EXPERIMENTS

Experiment 1.—Dog 12. Yellow male, weight 42 pounds. Operation, March 22, 1911. Right common carotid ligated.

Clamp Model 1, with plain No. 2 catgut on both blades applied to left common carotid. Second operation, April 20, 1911. Primary union of wound. Clamp found free in connective tissue capsule. Catgut entirely absorbed and blades together. Section of artery removed and split longitudinally from both ends (Fig. 7). Artery completely occluded and ends (*g*) united by fibrous tissue (*d*). A small clot (*c* and *e*) present in each occluded end.

EXPERIMENT 2.—Dog 13. Brindle bull, weight 50 pounds. Operation, March 24, 1911. Clamp Model 1, with plain No. 2 common carotid. Second operation, April 22, 1911. Catgut on outside of clamp entirely absorbed, but enough left between blades to prevent complete occlusion of artery. Clamp removed, fresh catgut wound around one of the blades, and reapplied to proximal portion of artery. Third operation, May 26, 1911. Catgut completely absorbed, and blades together. When the clamp was removed, weak pulsation was felt in distal segment. Section of artery removed and examined (Fig. 9). Portion of artery in grasp of clamp (*c*) greatly narrowed almost to the point of obliteration. No intravascular clots.

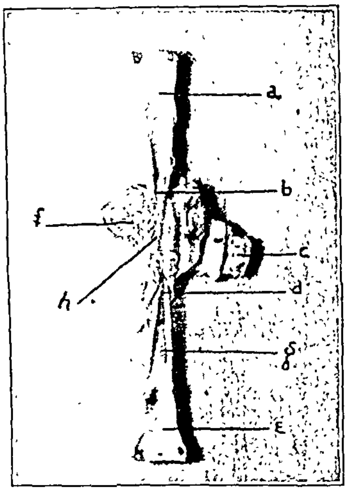

Fig. 13.—Dog 19; right common carotid. Exp. 10; a, below occlusion; b and d, occluded ends of artery; c, clamp in position; e, above occlusion; f, fibrous capsule around clamp; g, clot; h, fibrous tissue between ends.

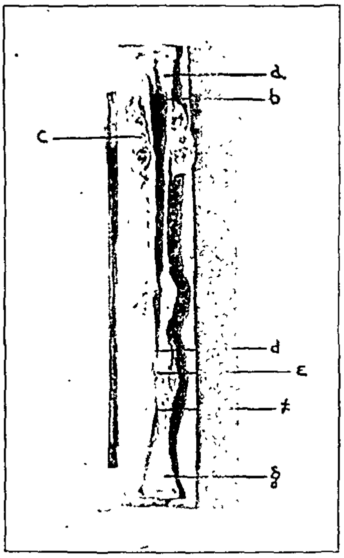

Fig. 14.—Dog 19; left common carotid. Exp. 11; a, above occlusion; b, clot; c, site of previous compression; d, occluded end of artery; e, fibrous tissue between ends; f, occluded end; g, below occlusion.

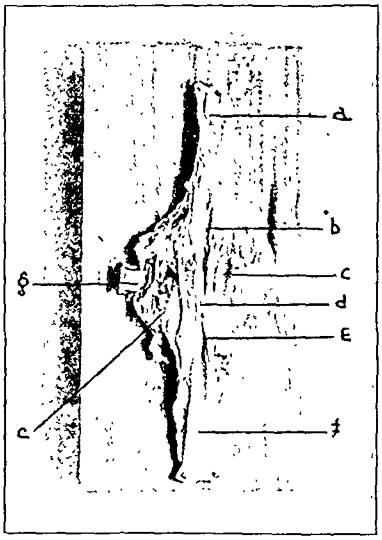

Fig. 15.—Dog 20; right common carotid. Exp. 12; a, above occlusion; b and e, occluded ends of artery; c, fibrous capsule around clamp; d, fibrous tissue between ends; f, below occlusion; g, clamp in position.

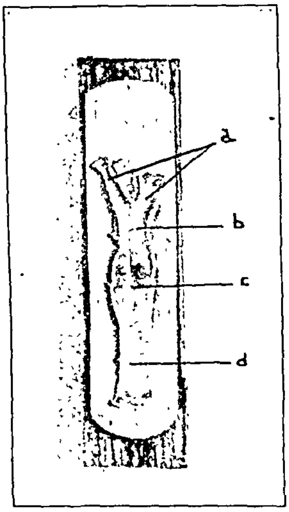

Fig. 16.—Dog 20; left common carotid. Exp. 13; a, ext. and int. carotids; b, above occlusion; c, dilatation at site of compression; d, below occlusion.

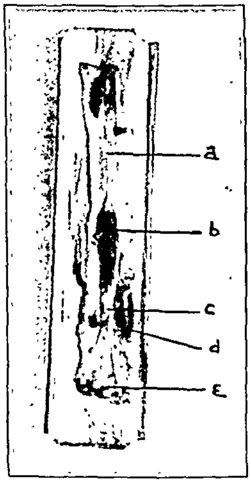

Fig. 17.—Dog 21; left common carotid. Exp. 15; a, below occlusion; b, clot; c, site of occlusion; d, part of fibrous capsule around clamp; e, above occlusion.

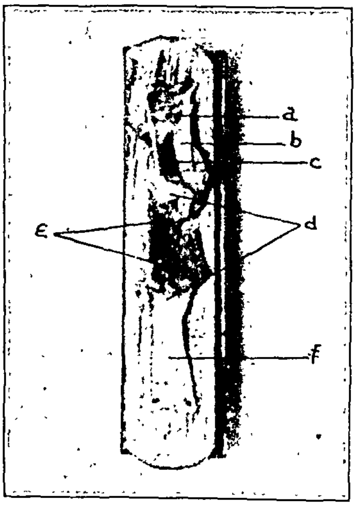

Fig. 18.—Dog 23; right common carotid. Exp. 18; a, collateral; b, above occlusion; c, clot; d, occluded ends of artery; e, fibrous tissue between ends; f, below occlusion.

catgut on one blade applied to right common carotid. Second operation, April 22, 1911. Primary union of wound. Clamp embedded in fibrous capsule. Catgut entirely absorbed and blades together. Section of artery removed and examined (Fig. 8). It was completely occluded at site of compression (*d*) and ends were united by dense fibrous tissue. A small clot (*c* and *e*) filled each of the occluded ends.

EXPERIMENT 3.—Dog 13. Operation, March 24, 1911. Model 1 clamp with plain No. 2 catgut on one blade applied to left

EXPERIMENT 4.—Dog 14. Small puppy. Operation, March 25, 1911. Clamp Model 1, with plain catgut on both blades applied to abdominal aorta below origin of renal arteries. Thoracic duct injured during the application. Dog died March 27 of general peritonitis. No changes found in aorta.

EXPERIMENT 5.—Dog 15. White male, weight 28 pounds. Operation, March 28, 1911. Clamp Model 1 with decalcified bone separating blades applied to abdominal aorta. Dog developed a paraplegia, April 5, and died April 8. Necropsy

showed general peritonitis, and hemorrhage from a perforation of the aorta beneath the clamp.

Experiment 6.—Dog 16. Female bird dog, weight 40 pounds. Operation, April 3, 1911. Clamp Model 1, with decalcified bone separating blades applied to abdominal aorta. Second operation, May 18, 1911. Primary union of wound. Pulsation in femorals had been absent for three weeks. Aorta exposed, clamp imbedded in fibrous capsule (*c*, Fig. 10), decalcified bone *completely* absorbed and blades together. Section of aorta removed and examined (Figs. 10 and 11). Artery completely occluded at site of compression (*d*, Figs. 10 and 11) and portion of artery between the blades represented by a thin fibrous ribbon (*d*, Fig. 11). No intravascular clots. The vessel was closed on each side of clamp by fibrous union of its walls. The collaterals on both sides of the occlusion were large and numerous (*b*, Figs. 10 and 11).

Experiment 7.—Dog 17. Small white female. Weight 28 pounds. Operation, April 6, 1911. Clamp Model 3, with two pieces of decalcified bone separating blades, applied to abdominal aorta. Dog died April 16, 1911. Necropsy showed double pyonephrosis, with almost complete destruction of left kidney. Artery unchanged.

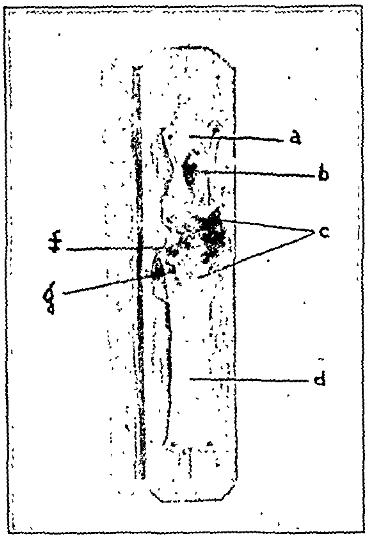

Fig. 19.—Dog 23; left common carotid. Exp. 19; a, above occlusion; b, clot; c, occluded ends of artery; d, below occlusion; f, fibrous tissue between ends of artery; g, point of perforation.

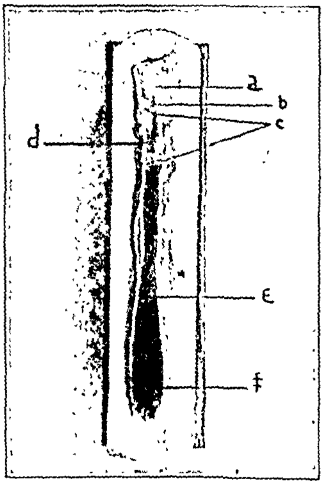

Fig. 20.—Dog 24; right common carotid. Exp. 20; a, above occlusion b, collateral; c, occluded ends of artery; d, fibrous tissue between occluded ends; e, clot; f, below occlusion.

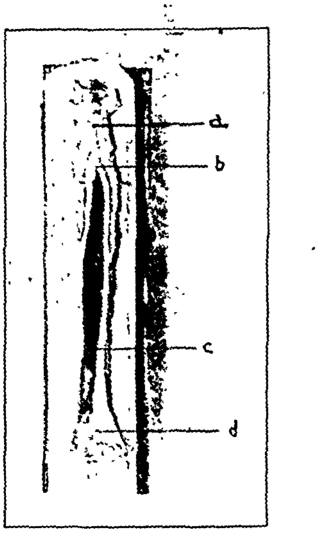

Fig. 21.—Dog 24; left common carotid. Exp. 21; a, fibrous tissue between occluded ends; b, occluded end of artery; c, clot d, artery below occlusion.

Experiment 8.—Dog 18. Small black female, weight 24 pounds. Operation, April 8, 1911. Clamp Model 4, with decalcified bone separating blades, applied to right common carotid. Second operation, May 2. Primary union of wound. Clamp in fibrous capsule. Nearly all of the bone was absorbed but a small amount remained between the blades. Very weak pulsation could be felt in artery distal to clamp.

Experiment 9.—Dog 18. Operation, April 8. Clamp Model 1 with decalcified bone separating blades applied to left common carotid. Second operation, May 2. Primary union of wound. Clamp embedded in fibrous capsule, bone completely absorbed and blades *together*. *Section of artery removed and* examined (Fig. 12). Artery is perfectly occluded at site of compression and each end tapers to a point (*b* and *d*). Ends united by fibrous tissue (*c*). No intravascular clots.

Experiment 10.—Dog 19. White bull terrier. Weight 32 pounds. Operation, April 13, 1911. Clamp Model 1, with plain No. 1 catgut on both blades applied to right common carotid. Second operation, May 5. Primary union of wound. Clamp embedded in fibrous capsule. Catgut was partially absorbed from both blades but *not sufficiently to completely obliterate* artery. Clamp removed and reapplied with fresh catgut, No. 1 plain, to proximal portion of artery. Third operation, June 2. Small superficial sinus at upper angle of wound not communicating with clamp. Clamp imbedded in fibrous capsule (Fig. 13, *f*). Catgut completely absorbed and blades together. No pulsation in distal segment. Section of artery removed and examined (Fig. 13). Vessel completely occluded at sight of compression, each end tapering to a point (*b* and *d*), small clot (*g*) in distal segment. Ends united by fibrous tissue (*h*).

Experiment 11.—Dog 19. Operation, April 13, 1911. Clamp Model 1 with plain No. 1 catgut on both blades applied to left common carotid. Second operation, May 5. Clamp in fibrous capsule. Catgut partially absorbed from both blades but not sufficiently to obliterate pulsation. Clamp removed and reapplied with fresh plain catgut to proximal portion of artery. Third operation, June 2. Clamp in fibrous capsule, catgut completely absorbed and blades together. Section of artery removed and examined (Fig. 14). Artery perfectly occluded at site of compression, and each end tapers to a point (*d* and *f*). Ends united by fibrous tissue (*c*). Distal segment contains an organizing blood-clot (*b*) extending from point of occlusion (*d*), *to point of previous application of clamp* (*c*).

Experiment 12.—Dog 20. White female bull. Weight 28 pounds. Operation, April 14, 1911. Clamp Model 1, with No. 1 iodin catgut on both blades applied to right common carotid. Second operation, May 6. Clamp in fibrous capsule and catgut partly absorbed. Weak pulsation distal *to* clamp. Clamp removed and one of Model 2 with No. 0 iodin catgut on one blade applied to proximal portion of artery. Third operation. June 3. Primary union. Clamp in fibrous capsule (*c*, Fig. 15). Catgut entirely absorbed and blades together. Section of artery removed and examined (Fig. 15). Artery completely occluded at site of compression *and each end tapers to a point* (*b* and *e*). Distal segment contains a small organized blood-clot. Ends united by fibrous tissue.

Experiment 13.—Dog 20. Operation, April 14, 1911. Clamp Model 1, with No. 1 iodin catgut on both blades, applied to left common carotid. Second operation, May 6, clamp in fibrous capsule and catgut partly absorbed from both blades. Section of artery removed and examined (Fig. 16). The artery between the blades was not obliterated but instead was considerably dilated when the pressure was removed (*c*, Fig. 16). With the clamp in place the vessel was occluded by approximation of the walls, but when removed it expanded like a fusiform aneurysm. A small clot filling the lumen of the vessel was loosely attached at the site of compression.

Experiment 14.—Dog 21. Female brindle bull. Weight 46 pounds. Operation, April 23, 1911. Clamp Model 2 with No. 0 iodin catgut on both blades applied to right common carotid artery. Second operation, May 26. Pulsation present distal to compression, so clamp was left in place. Third operation.

June 9. Clamp in fibrous capsule, pulsation in distal segment almost as strong as in proximal. Practically no absorption of catgut. The iodin catgut was removed from the clamp and one blade wound with No. 2 plain gut.

EXPERIMENT 15.—Dog 21. Operation, April 23. Clamp Model 2, with No. 0 iodin catgut on both blades applied to left common carotid artery. Second operation, May 26. Clamp in fibrous capsule, catgut partially absorbed and blades almost together. No pulsation distal to clamp. Section removed and examined (Fig. 17). The portion of artery in the grasp of the clamp (c) greatly narrowed, and obliteration of the lumen in progress. In distal segment there is an organizing clot (b) filling the lumen.

EXPERIMENT 16.—Dog 22. Black and tan male. Weight 18 pounds. Operation, April 24, 1911. Clamp Model 2, with No. 0 iodin catgut on one blade applied to right common carotid. Second operation, May 29. Pulsation present distal to clamp. Catgut partly absorbed but not sufficiently to occlude artery. Clamp left in place. *Third operation, June 14. Clamp in* fibrous capsule. Catgut almost entirely absorbed but just sufficient of it left between blades to prevent obliteration of artery. Very feeble pulsation distal to clamp. Section of artery removed and examined. Artery was practically occluded by approximation of its walls in grasp of clamp. On longitudinal section, however, it exhibited practically no change except a darkening of the intima at site of compression.

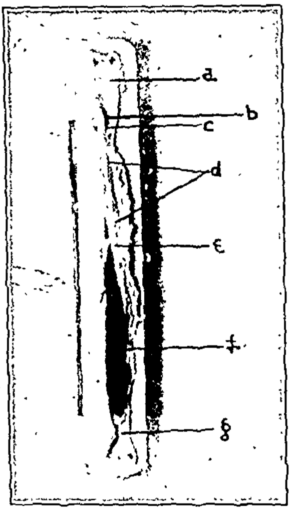

Fig. 22.—Dog 25; right common carotid. Exp. 22; a, above occlusion; b, collateral; c and e, occluded ends of artery; f, clot; g, below occlusion; d, fibrous tissue between ends.

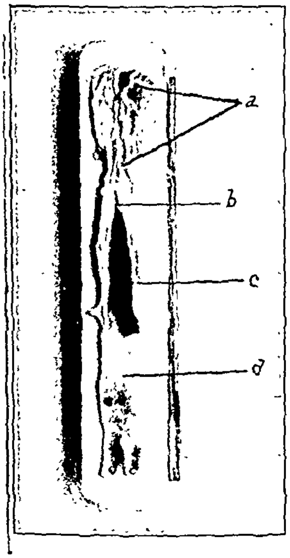

Fig. 23.—Dog 25; left common carotid. Exp. 23; a, fibrous tissue between occluded ends of artery; b, occluded proximal end; c, clot; d, artery below occlusion.

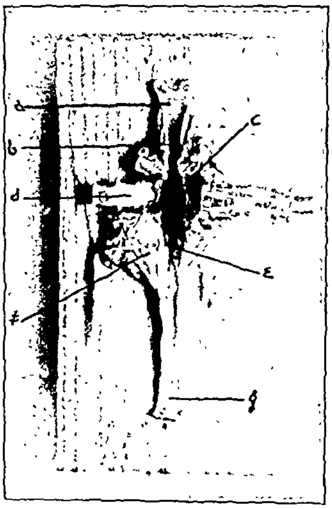

Fig. 24.—Dog 27; right common carotid. Exp. 26; a, above occlusion; b, clot; c, portion of artery in clamp; d, clamp in position; e, clot; f, fibrous capsule around clamp; g, below occlusion.

EXPERIMENT 17.—Dog 22. Operation, April 24, 1911. Clamp Model 2, with No. 0 iodin catgut on one blade applied to left common carotid. Second operation, May 29. Catgut partly absorbed but not sufficiently to stop pulsation. Clamp left in place. Third operation, June 14. Primary union of wound. Clamp in fibrous capsule. Catgut almost completely absorbed but enough left between blades to prevent obliteration of artery. Feeble pulsation distal to clamp. Section of artery removed and examined. Same description applies here as to specimen removed from experiment 16.

EXPERIMENT 18.—Dog 23. Female bird dog. Weight 40 pounds. Operation, April 27, 1911. Clamp Model 2, with No. 0 iodin catgut on both blades applied to right common carotid. Second operation, May 18. Primary union of wound. Clamp in fibrous capsule. All of the catgut had been absorbed from one blade and most of it from the other, allowing the blades to come together. Section removed and examined (Fig. 18). The artery was completely occluded at site of compression, and the ends (d) closed by organic union. Ends united by fibrous tissue (c). Small clot (c) in distal end.

EXPERIMENT 19.—Dog 23. Operation, April 27, 1911. Clamp Model 2, with No. 0 iodin catgut on both blades applied to left common carotid artery. Second operation, May 18. Hematoma, the size of a small orange, present in neck beneath scar. Three days before operation, dog was kicked in neck during a fight, which accounted for the hemorrhage. Left common carotid exposed. Clamp found free from artery. About half of catgut had been absorbed from both blades, permitting them to come close together. Section of artery removed and examined (Fig. 19). Artery was perfectly occluded at site of compression (*f*). Distal end containing a small clot (*b*) was occluded by a fibrous union of its walls (*c*). Proximal end too was occluded by organic union (*c*); except at one point (*g*) in the line of union, from which hemorrhage had taken place. This rupture had evidently been caused by the impact of the clamp against the vessel end when the dog was kicked.

EXPERIMENT 20.—Dog 24. White puppy. Weight 25 pounds. Operation, April 27, 1911. Clamp Model 2, with No. 0 iodin *catgut on both blades applied to right common carotid.* Second operation, May 29. Primary union of wound. Clamp in fibrous capsule. Catgut on both blades was almost entirely absorbed and blades were together. Section removed and examined (Fig. 20). Artery completely occluded at site of compression (*d*) each occluded end tapering to a point (*c*). Ends united by fibrous tissue (*d*). In proximal segment is a clot (*c*) which fills the vessel.

EXPERIMENT 21.—Dog 24. Operation, April 27. Clamp Model 2 with No. 0 iodin catgut on both blades applied to left common carotid. Second operation, May 29. Primary union of wound. Clamp in fibrous capsule. All of the catgut on one blade was absorbed and all but one layer from the other. Blades were together. Section removed and examined (Fig. 21). Vessel was completely occluded at site of compression and proximal end tapered to a point (*b*). Beyond proximal end was firm fibrous tissue (*a*). A clot (*c*) completely filled this segment of the artery. The distal end was not included in the excised portion.

EXPERIMENT 22.—Dog 25. Yellow male. Weight 45 pounds. Operation, May 3, 1911. Clamp Model 2, with No. 0 iodin catgut, applied to right common carotid. Second operation, May 31. In lower portion of wound a sinus leads down to situation of clamp. Clamp free from artery, catgut entirely absorbed and blades together. No pulsation beyond clamp. Section removed and examined (Fig. 22). Artery completely occluded, each end tapering to a point, (*c and c*). The ends were united by *fibrous tissue* (*d*). In proximal segment a clot (*f*) completely fills the lumen.

showed general peritonitis, and hemorrhage from a perforation of the aorta beneath the clamp.

Experiment 6.—Dog 16. Female bird dog, weight 40 pounds. Operation, April 3, 1911. Clamp Model 1, with decalcified bone separating blades applied to abdominal aorta. Second operation, May 18, 1911. Primary union of wound. Pulsation in femorals had been absent for three weeks. Aorta exposed, clamp imbedded in fibrous capsule (*c*, Fig. 10), decalcified bone completely absorbed and blades together. Section of aorta removed and examined (Figs. 10 and 11). Artery completely occluded at site of compression (*d*, Figs. 10 and 11) and portion of artery between the blades represented by a thin fibrous ribbon (*d*, Fig. 11). No intravascular clots. The vessel was closed on each side of clamp by fibrous union of its walls. The collaterals on both sides of the occlusion were large and numerous (*b*, Figs. 10 and 11).

Experiment 7.—Dog 17. Small white female. Weight 28 pounds. Operation, April 6, 1911. Clamp Model 3, with two pieces of decalcified bone separating blades, applied to abdominal aorta. Dog died April 16, 1911. Necropsy showed double pyonephrosis, with almost complete destruction of left kidney. Artery unchanged.

Experiment 8.—Dog 18. Small black female, weight 24 pounds. Operation, April 8, 1911. Clamp Model 4, with decalcified bone separating blades, applied to right common carotid. Second operation, May 2. Primary union of wound. Clamp in fibrous capsule. Nearly all of the bone was absorbed but a small amount remained between the blades. Very weak pulsation could be felt in artery distal to clamp.

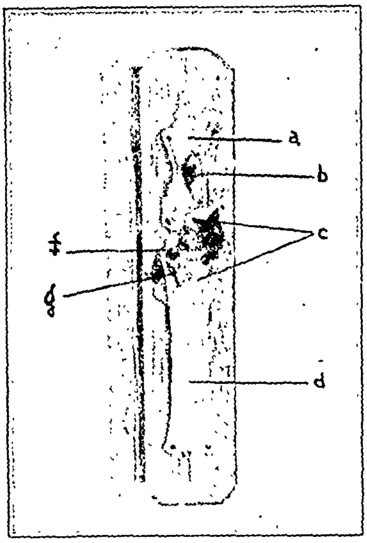

Fig. 19.—Dog 23; left common carotid. Exp. 19; a, above occlusion; b, clot; c, occluded ends of artery; d, below occlusion; f, fibrous tissue between ends of artery; g, point of perforation.

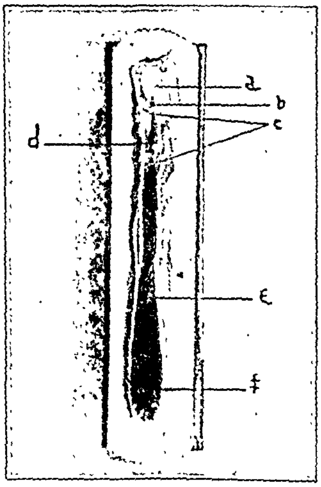

Fig. 20.—Dog 24; right common carotid. Exp. 20; a, above occlusion, b, collateral; c, occluded ends of artery; d, fibrous tissue between occluded ends; e, clot; f, below occlusion.

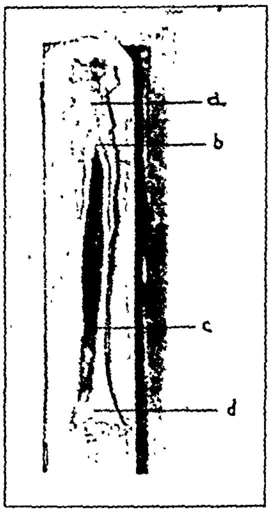

Fig. 21.—Dog 24; left common carotid. Exp. 21; a, fibrous tissue between occluded ends; b, occluded end of artery; c, clot; d, artery below occlusion.

Experiment 9.—Dog 18. Operation, April 8. Clamp Model 1 with decalcified bone separating blades applied to left common carotid. Second operation, May 2. Primary union of wound. Clamp embedded in fibrous capsule, bone completely absorbed and blades together. Section of artery removed and examined (Fig. 12). Artery is perfectly occluded at site of compression and each end tapers to a point (*b* and *d*). Ends united by fibrous tissue (*c*). No intravascular clots.

Experiment 10.—Dog 19. White bull terrier. Weight 32 pounds. Operation, April 13, 1911. Clamp Model 1, with plain No. 1 catgut on both blades applied to right common carotid. Second operation, May 5. Primary union of wound. Clamp embedded in fibrous capsule. Catgut was partially absorbed from both blades but not sufficiently to completely obliterate artery. Clamp removed and reapplied with fresh catgut, No. 1 plain, to proximal portion of artery. Third operation, June 2. Small superficial sinus at upper angle of wound not communicating with clamp. Clamp imbedded in fibrous capsule (Fig. 13, *f*). Catgut completely absorbed and blades together. No pulsation in distal segment. Section of artery removed and examined (Fig. 13). Vessel completely occluded at sight of compression, each end tapering to a point (*b* and *d*), small clot (*g*) in distal segment. Ends united by fibrous tissue (*h*).

Experiment 11.—Dog 19. Operation, April 13, 1911. Clamp Model 1 with plain No. 1 catgut on both blades applied to left common carotid. Second operation, May 5. Clamp in fibrous capsule. Catgut partially absorbed from both blades but not sufficiently to obliterate pulsation. Clamp removed and reapplied with fresh plain catgut to proximal portion of artery. Third operation, June 2. Clamp in fibrous capsule, catgut completely absorbed and blades together. Section of artery removed and examined (Fig. 14). Artery perfectly occluded at site of compression, and each end tapers to a point (*d* and *f*). Ends united by fibrous tissue (*e*). Distal segment contains an organizing blood-clot (*b*) extending from point of occlusion (*d*), to point of previous application of clamp (*c*).

Experiment 12.—Dog 20. White female bull. Weight 28 pounds. Operation, April 14, 1911. Clamp Model 1, with No. 1 iodin catgut on both blades applied to right common carotid. Second operation, May 6. Clamp in fibrous capsule and catgut partly absorbed. Weak pulsation distal to clamp. Clamp removed and one of Model 2 with No. 0 iodin catgut on one blade applied to proximal portion of artery. Third operation. June 3. Primary union. Clamp in fibrous capsule (*c*, Fig. 15). Catgut entirely absorbed and blades together. Section of artery removed and examined (Fig. 15). Artery completely occluded at site of compression and each end tapers to a point (*b* and *e*). Distal segment contains a small organized blood-clot. Ends united by fibrous tissue.

Experiment 13.—Dog 20. Operation, April 14, 1911. Clamp Model 1, with No. 1 iodin catgut on both blades, applied to left common carotid. Second operation, May 6, clamp in fibrous capsule and catgut partly absorbed from both blades. Section of artery removed and examined (Fig. 16). The artery between the blades was not obliterated but instead was considerably dilated when the pressure was removed (*c*, Fig. 16). With the clamp in place the vessel was occluded by approximation of the walls, but when removed it expanded like a fusiform aneurysm. A small clot filling the lumen of the vessel was loosely attached at the site of compression.

Experiment 14.—Dog 21. Female brindle bull. Weight 46 pounds. Operation, April 23, 1911. Clamp Model 2 with No. 0 iodin catgut on both blades applied to right common carotid artery. Second operation, May 26. Pulsation present distal to compression, so clamp was left in place. Third operation,

showed general peritonitis, and hemorrhage from a perforation of the aorta beneath the clamp.

EXPERIMENT 6.—Dog 16. Female bird dog, weight 40 pounds. Operation, April 3, 1911. Clamp Model 1, with decalcified bone separating blades applied to abdominal aorta. Second operation, May 18, 1911. Primary union of wound. Pulsation in femorals had been absent for three weeks. Aorta exposed, clamp imbedded in fibrous capsule (*c*, Fig. 10), decalcified bone completely absorbed and blades together. Section of aorta removed and examined (Figs. 10 and 11). Artery completely occluded at site of compression (*d*, Figs. 10 and 11) and portion of artery between the blades represented by a thin fibrous ribbon (*d*, Fig. 11). No intravascular clots. The vessel was closed on each side of clamp by fibrous union of its walls. The collaterals on both sides of the occlusion were large and numerous (*b*, Figs. 10 and 11).

EXPERIMENT 7.—Dog 17. Small white female. Weight 28 pounds. Operation, April 6, 1911. Clamp Model 3, with two pieces of decalcified bone separating blades, applied to abdominal aorta. Dog died April 16, 1911. Necropsy showed double pyonephrosis, with almost complete destruction of left kidney. Artery unchanged.

EXPERIMENT 8.—Dog 18. Small black female, weight 24 pounds. Operation, April 8, 1911. Clamp Model 4, with decalcified bone separating blades, applied to right common carotid. Second operation, May 2. Primary union of wound. Clamp in fibrous capsule. Nearly all of the bone was absorbed but a small amount remained between the blades. Very weak pulsation could be felt in artery distal to clamp.

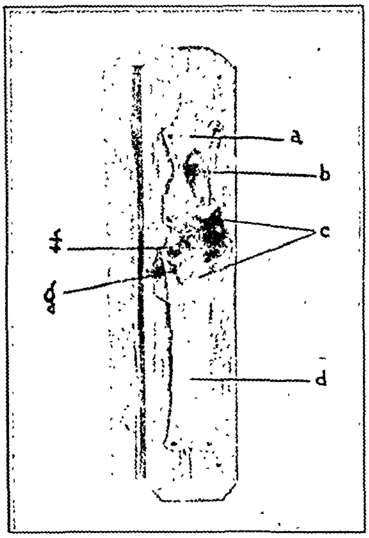

Fig. 19.—Dog 23; left common carotid. Exp. 19; a, above occlusion; b, clot; c, occluded ends of artery; d, below occlusion; f, fibrous tissue between ends of artery; g, point of perforation.

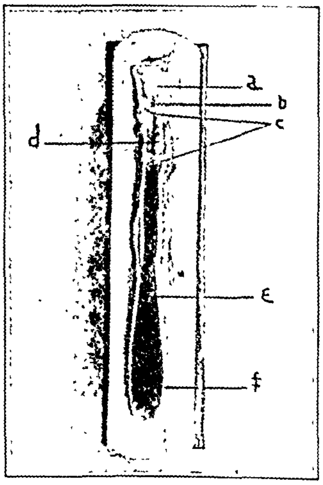

Fig. 20.—Dog 24; right common carotid. Exp. 20; a, above occlusion, b, collateral; c, occluded ends of artery; d, fibrous tissue between occluded ends; e, clot; f, below occlusion.

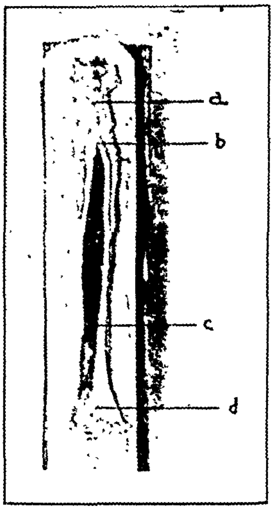

Fig. 21.—Dog 24; left common carotid. Exp. 21; a, fibrous tissue between occluded ends; b, occluded end of artery; c, clot; d, artery below occlusion.

EXPERIMENT 9.—Dog 18. Operation, April 8. Clamp Model 1 with decalcified bone separating blades applied to left common carotid. Second operation, May 2. Primary union of wound. Clamp embedded in fibrous capsule, bone completely absorbed and blades together. Section of artery removed and examined (Fig. 12). Artery is perfectly occluded at site of compression and each end tapers to a point (*b* and *d*). Ends united by fibrous tissue (*c*). No intravascular clots.

EXPERIMENT 10.—Dog 19. White bull terrier. Weight 32 pounds. Operation, April 13, 1911. Clamp Model 1, with plain No. 1 catgut on both blades applied to right common carotid. Second operation, May 5. Primary union of wound. Clamp embedded in fibrous capsule. Catgut was partially absorbed from both blades but not sufficiently to completely obliterate artery. Clamp removed and reapplied with fresh catgut, No. 1 plain, to proximal portion of artery. Third operation, June 2. Small superficial sinus at upper angle of wound not communicating with clamp. Clamp imbedded in fibrous capsule (Fig. 13, *f*). Catgut completely absorbed and blades together. No pulsation in distal segment. Section of artery removed and examined (Fig. 13). Vessel completely occluded at sight of compression, each end tapering to a point (*b* and *d*), small clot (*a*) in distal segment. Ends united by fibrous tissue (*h*).

EXPERIMENT 11.—Dog 19. Operation, April 13, 1911. Clamp Model 1 with plain No. 1 catgut on both blades applied to left common carotid. Second operation, May 5. Clamp in fibrous capsule. Catgut partially absorbed from both blades but not sufficiently to obliterate pulsation. Clamp removed and reapplied with fresh plain catgut to proximal portion of artery. Third operation, June 2. Clamp in fibrous capsule, catgut completely absorbed and blades together. Section of artery removed and examined (Fig. 14). Artery perfectly occluded at site of compression, and each end tapers to a point (*d* and *f*). Ends united by fibrous tissue (*e*). Distal segment contains an organizing blood-clot (*b*) extending from point of occlusion (*d*), to point of previous application of clamp (*c*).

EXPERIMENT 12.—Dog 20. White female bull. Weight 28 pounds. Operation, April 14, 1911. Clamp Model 1, with No. 1 iodin catgut on both blades applied to right common carotid. Second operation, May 6. Clamp in fibrous capsule and catgut partly absorbed. Weak pulsation distal to clamp. Clamp removed and one of Model 2 with No. 0 iodin catgut on one blade applied to proximal portion of artery. Third operation, June 3. Primary union. Clamp in fibrous capsule (*c*, Fig. 15). Catgut entirely absorbed and blades together. Section of artery removed and examined (Fig. 15). Artery completely occluded at site of compression and each end tapers to a point (*b* and *e*). Distal segment contains a small organized blood-clot. Ends united by fibrous tissue.

EXPERIMENT 13.—Dog 20. Operation, April 14, 1911. Clamp Model 1, with No. 1 iodin catgut on both blades, applied to left common carotid. Second operation, May 6, clamp in fibrous capsule and catgut partly absorbed from both blades. Section of artery removed and examined (Fig. 16). The artery between the blades was not obliterated but instead was considerably dilated when the pressure was removed (*c*, Fig. 16). With the clamp in place the vessel was occluded by approximation of the walls, but when removed it expanded like a fusiform aneurysm. A small clot filling the lumen of the vessel was loosely attached at the site of compression.

EXPERIMENT 14.—Dog 21. Female brindle bull. Weight 46 pounds. Operation, April 23, 1911. Clamp Model 2 with No. 0 iodin catgut on both blades applied to right common carotid artery. Second operation, May 26. Pulsation present distal to compression, so clamp was left in place. Third operation, June 9. Clamp in fibrous capsule, pulsation in distal segment almost as strong as in proximal. Practically no absorption of catgut. The iodin catgut was removed from the clamp and one blade wound with No. 2 plain gut.

Experiment 15.—Dog 21. Operation, April 23. Clamp Model 2, with No. 0 iodin catgut on both blades applied to left common carotid artery. Second operation, May 26. Clamp in fibrous capsule, catgut partially absorbed and blades almost together. No pulsation distal to clamp. Section removed and examined (Fig. 17). The portion of artery in the grasp of the clamp (c) greatly narrowed, and obliteration of the lumen in progress. In distal segment there is an organizing clot (*b*) filling the lumen.

Experiment 16.—Dog 22. Black and tan male. Weight 18 pounds. Operation, April 21, 1911. Clamp Model 2, with No. 0 iodin catgut on one blade applied to right common carotid. Second operation, May 29. Pulsation present distal to clamp. Catgut partly absorbed but not sufficiently to occlude artery. Clamp left in place. Third operation, June 14. Clamp in fibrous capsule. Catgut almost entirely absorbed but just sufficient of it left between blades to prevent obliteration of artery. Very feeble pulsation distal to clamp. Section of artery removed and examined. Artery was practically occluded. by approximation of its walls in grasp of clamp. On longitudinal section, however, it exhibited practically no change except a darkening of the intima at site of compression.

Experiment 17.—Dog 22. Operation, April 24, 1911. Clamp Model 2, with No. 0 iodin catgut on one blade applied to left common carotid. Second operation, May 29. Catgut partly absorbed but not sufficiently to stop pulsation. Clamp left in place. Third operation, June 14. Primary union of wound. Clamp in fibrous capsule. Catgut almost completely absorbed but enough left between blades to prevent obliteration of artery. Feeble pulsation distal to clamp. Section of artery removed and examined. Same description applies here as to specimen removed from experiment 16.

Experiment 18.—Dog 23. Female bird dog. Weight 40 pounds. Operation, April 27, 1911. Clamp Model 2, with No. 0 iodin catgut on both blades applied to right common carotid. Second operation, May 18. Primary union of wound. Clamp in fibrous capsule. All of the catgut had been absorbed from one blade and most of it from the other, allowing the blades to come together. Section removed and examined (Fig. 18). The artery was completely occluded at site of compression, and the ends (*d*) closed by organic union. Ends united by fibrous tissue (*c*). Small clot (*c*) in distal end.

Experiment 19.—Dog 23. Operation, April 27, 1911. Clamp Model 2, with No. 0 iodin catgut on both blades applied to left common carotid artery. Second operation, May 18. Hematoma, the size of a small orange, present in neck beneath scar. Three days before operation, dog was kicked in neck during a fight, which accounted for the hemorrhage. Left common carotid exposed. Clamp found free from artery. About half of catgut had been absorbed from both blades, permitting them to come close together. Section of artery removed and examined (Fig. 19). Artery was perfectly occluded at site of compression (*f*). Distal end containing a small clot (*b*) was occluded by a fibrous union of its walls (*c*). Proximal end too was occluded by organic union (*c*); except at one point (*a*) in the line of union, from which hemorrhage had taken place. This rupture had evidently been caused by the impact of the clamp against the vessel end when the dog was kicked.

Experiment 20.—Dog 24. White puppy. Weight 25 pounds. Operation, April 27, 1911. Clamp Model 2, with No. 0 iodin catgut on both blades applied to right common carotid. Second operation, May 29. Primary union of wound. Clamp in fibrous capsule. Catgut on both blades was almost entirely absorbed and blades were together. Section removed and examined (Fig. 20). Artery completely occluded at site of compression (*d*) each occluded end tapering to a point (*c*). Ends united by fibrous tissue (*d*). In proximal segment is a clot (*c*) which fills the vessel.

Experiment 21.—Dog 24. Operation, April 27. Clamp Model 2 with No. 0 iodin catgut on both blades applied to left common carotid. Second operation, May 29. Primary union of wound. Clamp in fibrous capsule. All of the catgut on one blade was absorbed and all but one layer from the other. Blades were together. Section removed and examined (Fig. 21). Vessel was completely occluded at site of compression and proximal end tapered to a point (*b*). Beyond proximal end was firm fibrous tissue (*a*). A clot (*c*) completely filled this segment of the artery. The distal end was not included in the excised portion.

Experiment 22.—Dog 25. Yellow male. Weight 45 pounds. Operation, May 3, 1911. Clamp Model 2, with No. 0 iodin catgut, applied to right common carotid. Second operation, May 31. In lower portion of wound a sinus leads down to site of clamp. Clamp free from artery, catgut entirely absorbed and blades together. No pulsation beyond clamp. Section removed and examined (Fig. 22). Artery completely occluded, each end tapering to a point, (*c* and *e*). The ends were united by fibrous tissue (*d*). In proximal segment a clot (*f*) completely fills the lumen.

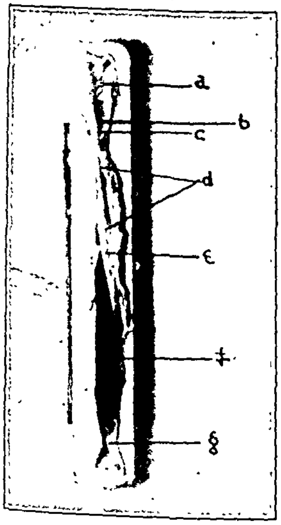

Fig. 22.—Dog 25; right common carotid. Exp. 22; a, above occlusion; b, collateral; c and e, occluded ends of artery; f, clot; g, below occlusion; d, fibrous tissue between ends.

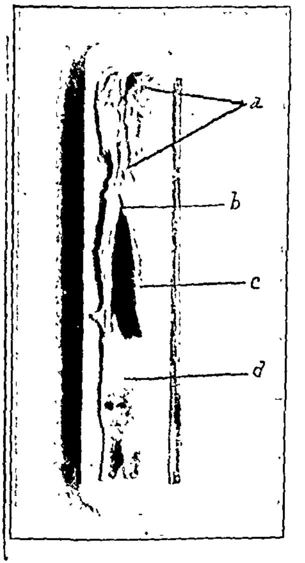

Fig. 23.—Dog 25; left common carotid. Exp. 23; a, fibrous tissue between occluded ends of artery; b, occluded proximal end; c, clot; d, artery below occlusion.

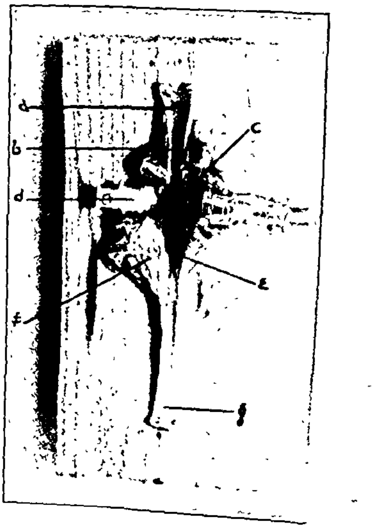

Fig. 24.—Dog 27; right common carotid. Exp. 26; a, above occlusion; b, distal portion of artery in clamp; d, clamp in position; e, clot; f, fibrous capsule around clamp; g, below occlusion.

Experiment 23.—Dog 25. Operation, May 3, 1911. Clamp Model 2, with No. 0 iodin catgut on one blade, applied to left common carotid. Second operation, May 31. Primary union of wound. Clamp in fibrous capsule and blades together. The catgut was entirely absorbed. Specimen removed and examined (Fig. 23). Vessel completely occluded and proximal segment tapered to a point (*b*). In this portion of the artery was a clot (*c*) which completely filled the lumen. Beyond the occluded end is dense fibrous tissue (*a*). The distal segment is not included in the specimen.

Experiment 24.—Dog 26. Black female, weight 24 pounds. Operation, May 5, 1911. Clamp Model 2, with No. 0 iodin catgut on both blades applied to right common carotid. Second operation, June 2. Weak pulsation felt distal to clamp. Catgut on blades partly absorbed but not sufficiently to occlude lumen. Clamp left in place. Third operation, June 15. Primary union. Clamp in fibrous capsule. Catgut absorbed excepting one layer which was enough to prevent complete occlusion of artery. Feeble pulsation distal to clamp. Clamp left in place.

Experiment 25.—Dog 26. Operation, May 5, 1911. Clamp Model 2, with No. 1 plain catgut on both blades applied to left common carotid. Second operation, June 2. Same description of second operation applies here as in Experiment 24. Third operation, June 15. Primary union. Clamp in fibrous capsule, all of the catgut absorbed and blades as close together as set screw would permit. Feeble pulsation distal to clamp. Section removed and examined. The portion of artery in the grasp of the clamp greatly thinned from pressure atrophy but showing no evidence of obliteration. In this case the set-screw did not permit blades to come together, and pressure atrophy so thinned the vessel wall that the circulation was permitted to go on through the clamp.

Experiment 26.—Dog 27. Brown male. Weight 36 pounds. Operation, May 6, 1911. Clamp Model 2 with No. 0 iodin catgut on one blade applied to right common carotid. Second operation, June 3. Primary union of wound. Very feeble pulsation distal to compression. Clamp in fibrous capsule (*f*, Fig. 24). Catgut partly absorbed but not sufficiently to allow blades to come together. Section removed and examined (Fig. 24). Portion of artery in grasp of clamp was greatly thinned (*c*) and showed evidence of obliterative endarteritis. There is a small clot (*b* and *c*) on each side of the clamp.

Experiment 27.—Dog 27. Operation, May 6, 1911. Clamp Model 2, with No. 0 iodin catgut on one blade applied to left common carotid. Second operation, June 3. Primary union of wound. Clamp in fibrous capsule (*c*, Fig. 25). Catgut partially absorbed but blades not together. Section of artery removed and examined (Fig. 25). Portion of artery in grasp of clamp (*f*) greatly thinned and narrowed and an obliterative endarteritis in progress. A small clot (*c* and *g*) present on each side of clamp.

Experiment 28.—Dog 28. Yellow male, weight 42 pounds. Operation, May 8, 1911. Clamp Model 2, with plain No. 1 catgut on one blade applied to right femoral artery. Second operation, June 8. There was a small sinus in scar which led down to clamp. Clamp was free from artery, catgut all absorbed and blades together. Artery completely divided and stumps separated one inch. Both stumps pulsated. Proximal and distal segments removed and examined (Fig. 26). Each segment tapered to a point (*c*) beyond which was dense fibrous tissue (*d*). No clot in either segment.

Experiment 29.—Dog 28. Operation, May 8. Clamp Model 2 with No. 1 plain catgut on one blade applied to left femoral artery. Second operation, June 8. Primary union of wound. Clamp was free from artery. Catgut entirely absorbed and blades together. The artery was completely divided and stumps separated 1 inch. Both stumps pulsated. Proximal and distal segments removed and examined (Fig. 27). Each segment tapered to a point (*c*) beyond which was fibrous tissue (*f*). Proximal segment contained a small clot (*d*) in the occluded end.

Experiment 30.—Dog 29. Small black female, weight 24 pounds. Operation, May 9, 1911. Clamp Model 2 with plain No. 1 catgut on both blades applied to abdominal aorta. Dog *died* May 15. For two days before death there was evidence of paraplegia. Post-mortem showed primary union of wound. Profuse hemorrhage in peritoneum and retroperitoneal space. Clamp in position. Catgut had begun to absorb. Section of aorta removed and examined. In anterior wall of artery was a small perforation which had evidently been caused by the pressure of the edge of the clamp. A small intravascular clot covered the perforation.

Experiment 31.—Dog 30. Black male. Weight 38 pounds. Operation, May 10, 1911. Clamp Model 2 with plain No. 1 catgut on one blade applied to right common carotid. Second operation, June 7. Primary union of wound. Clamp in fibrous capsule (*c*, Fig. 28), catgut entirely absorbed and blades together. No pulsation distal to clamp. Section of artery removed and examined (Fig. 28). Artery was perfectly occluded, each segment tapering to a point (*c*). Ends joined

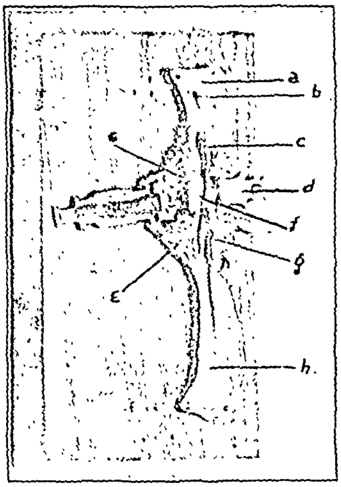

Fig. 25.—Dog 27; left common carotid. Exp. 27; a, above occlusion; b, collateral; c, clot; d, clamp in position; e, capsule around clamp; f, portion of artery in clamp; g, clot; h, below occlusion.

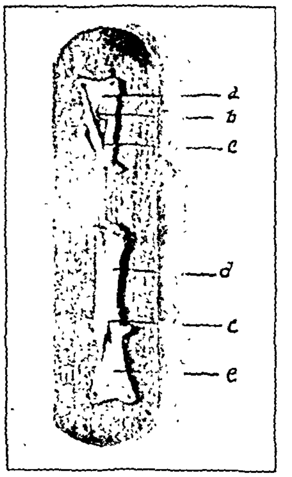

Fig. 26.—Dog 28; right femoral. Exp. 28; a, above occlusion; b, collateral; c, occluded ends of artery; d, fibrous tissue; e, below occlusion.

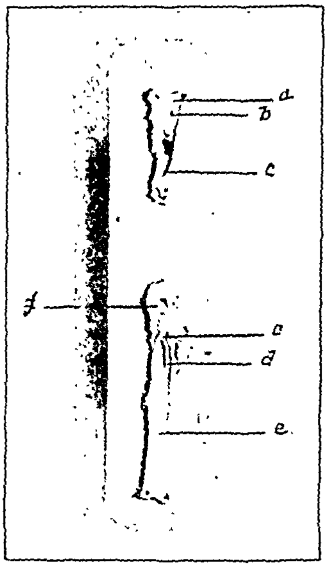

Fig. 27.—Dog 28; left femoral. Exp. 29; a, above occlusion; b, collateral; c, occluded ends of artery; d, small clot; e, below occlusion; f, fibrous tissue.

TABLE SHOWING RESULTS OF EXPERIMENTS

Exp. No.	Artery Clamped.	Type of Clamp.	Absorbable Material Used.	Time.	Degree of Occlusion Found at Second Operation.	Absorption of Catgut or Decalcified Bone.	Healing of Wound.	Symptoms After Application of Clamp.
1	Left common carotid	Model 1	Plain catgut	29 days	Complete	Completely absorbed	Primary union	None.
2	Right common carotid	Model 1	Plain catgut	29 days	Complete	Completely absorbed	Primary union	None.
3	Left common carotid	Model 1	Plain catgut	34 days	Complete	Completely absorbed	Primary union	None.
4	Abdominal aorta	Model 1	Plain catgut	2 days	No change. Death		Suppuration	General peritonitis.
5	Abdominal aorta	Model 1	Decalcified bone	11 days	Artery eroded. Hemorrhage. Death.		Suppuration	Paraplegia for 3 days before death.
6	Abdominal aorta	Model 1	Decalcified bone	45 days	Completely occluded	Completely absorbed	Primary union	None.
7	Abdominal aorta	Model 3	Decalcified bone	10 days	No change. Death from pyonephrosis.		Suppuration	No paraplegia.
8	Right common carotid	Model 4	Decalcified bone	24 days	Partial occlusion	Almost complete	Primary union	None.
9	Left common carotid	Model 1	Decalcified bone	24 days	Completely occluded	Completely absorbed	Primary union	None.
10	Right common carotid	Model 1	Plain catgut	28 days	Completely occluded	Completely absorbed	Small superficial sinus not communicating with clamp.	None.
11	Left common carotid	Model 1	Plain catgut	28 days	Completely occluded	Completely absorbed	Same as Exp. 10. Primary union of deep tissues.	None.
12	Right common carotid	Model 2	Iodin catgut, No. 0	28 days	Completely occluded	Completely absorbed	Primary union	None.
13	Left common carotid	Model 1	Iodin catgut, No. 1	22 days	Completely occluded	Partially absorbed	Primary union	None.
14	Right common carotid	Model 2	Iodin catgut, No. 0	47 days	Not occluded	Not absorbed	Primary union	None.
15	Left common carotid	Model 2	Iodin catgut, No. 0	33 days	Completely occluded	Partially absorbed	Primary union	None.
16	Right common carotid	Model 2	Iodin catgut, No. 0	51 days	Partly occluded	Partly absorbed	Primary union	None.
17	Left common carotid	Model 2	Iodin catgut, No. 0	51 days	Partly occluded	Partly absorbed	Primary union	None.
18	Right common carotid	Model 2	Iodin catgut, No. 0	21 days	Completely occluded	All catgut on one blade absorbed and most of it on the other.	Primary union	None.
19	Left common carotid	Model 2	Iodin catgut	21 days	Completely occluded	About one-half of gut absorbed from both blades.	Primary union	None.
20	Right common carotid	Model 2	Iodin catgut, No. 0	32 days	Completely occluded	Most of catgut absorbed from both blades.	Primary union	None.
21	Left common carotid	Model 2	Iodin catgut, No. 0	32 days	Completely occluded	All from one blade absorbed and most of it from other.	Primary union	None.
22	Right common carotid	Model 2	Iodin catgut, No. 0	28 days	Completely occluded	Completely absorbed	Sinus from skin to clamp on right c. carotid.	None.
23	Left common carotid	Model 2	Iodin catgut, No. 0	28 days	Completely occluded	Completely absorbed	Primary union	None.
24	Right common carotid	Model 2	Iodin catgut, No. 0	41 days	Partly occluded	Partly absorbed	Primary union	None.
25	Left common carotid	Model 2	Plain catgut, No. 1	41 days	Partly occluded	Completely absorbed	Primary union	None.
26	Right common carotid	Model 2	Iodin catgut, No. 0	28 days	Partial occlusion. Feeble pulsation distal to clamp.	Partial absorption of catgut from both blades.	Primary union	None.
27	Left common carotid	Model 2	Iodin catgut, No. 0	28 days	Completely occluded	Partial absorption from both blades.	Primary union	None.
28	Right femoral	Model 2	Plain catgut, No. 1	31 days	Completely occluded	Completely absorbed	Sinus leading to clamp.	None.
29	Left femoral	Model 2	Plain catgut	31 days	Completely occluded	Completely absorbed	Primary union	None.
30	Aorta	Model 2	Plain catgut, No. 1	6 days	Artery perforated by edge of clamp. Hemorrhage. Death.	Absorption had just started.	Primary union	Paraplegia for 3 days before death.
31	Right common carotid	Model 2	Plain catgut, No. 1	28 days	Completely occluded	Completely absorbed	Primary union	None.
32	Left common carotid	Model 2	Plain catgut, No. 1	28 days	Completely occluded	Completely absorbed	Primary union	None.
33	Right common carotid	Model 2	Plain catgut, No. 1	28 days	Completely occluded	Completely absorbed	Primary union	None.
34	Left common carotid	Model 2	Plain catgut	28 days	Partially occluded. Feeble pulsation distal to clamp.	Almost complete absorption. Small amount of gut between blades.	Primary union	None.

by fibrous tissue (*d*). Both segments of artery contained blood-clots (*b*).

EXPERIMENT 32.—Dog 30. Operation, May 10. Clamp Model 2 with No. 1 plain catgut on one blade applied to left common carotid. Second operation, June 7. Primary union of wound. Clamp in fibrous capsule (*f*, Fig. 29), catgut entirely absorbed and blades together. No pulsation distal to compression. Section of artery removed and examined (Fig. 29). Artery perfectly occluded, each end tapering to a point (*b*). Ends united by fibrous tissue (*c*). Each segment contained a small blood-clot (*d*).

EXPERIMENT 33.—Dog 31. Female shepherd. Weight 26 pounds. Operation, May 10. Clamp Model 2 with plain No. 1 catgut on one blade applied to right common carotid. Second operation, June 7. Primary union of wound. Clamp in fibrous capsule, catgut entirely absorbed and blades as close together as set-screw would permit. No pulsation distal to compression. Section of artery removed and examined (Fig. 30). Portion of artery (*d*) in grasp of clamp was perfectly occluded by approximation of its walls. An obliterative endarteritis was in progress as shown by union of the walls on one side (*b*). There was no intravascular clot. This case demonstrates the purpose for which the set-screw was intended; viz., the complete occlusion of the vessel without its division by the clamp.

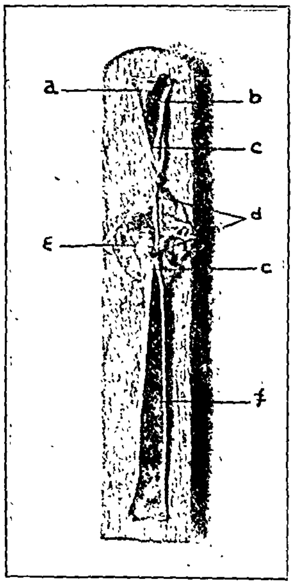

Fig. 28.—Dog 30; right common carotid. Exp. 31; a, above occlusion; b, clot; c, occluded ends of artery; d, fibrous tissue between ends; e, part of capsule around clamp; f, below occlusion.

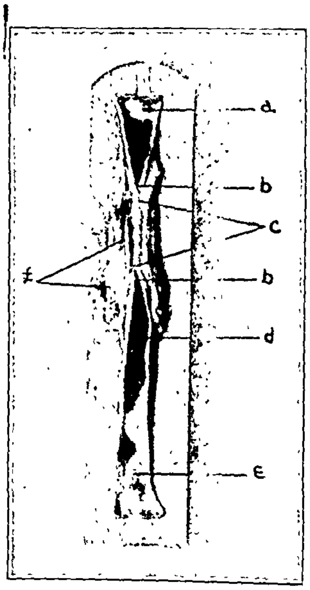

Fig. 29.—Dog 30; left common carotid. Exp. 32; a, above occlusion; b, occluded ends of artery; c, fibrous tissue between ends; d, clot; e, below occlusion; f, portion of fibrous capsule around clamp.

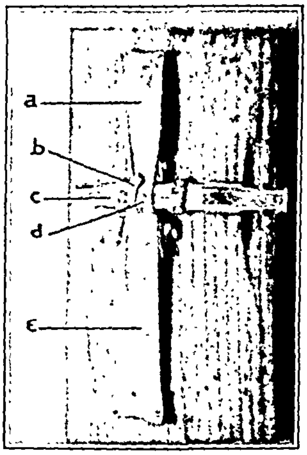

Fig. 30.—Dog 31; right common carotid. Exp. 33; a, above occlusion; b, portion of artery in clamp, where walls have united; c, clamp in position; d, portion of artery in clamp; e, below oclusion.

EXPERIMENT 34.—Dog 31. Operation, May 10. Clamp Model 2 with plain No. 1 catgut on one blade applied to left common carotid. Second operation, June 7. Primary union of wound. Clamp in fibrous capsule. All of the catgut on the outer surface was absorbed and only one layer left between the set-screw and the opposite blade. This prevented complete occlusion of the vessel. There was feeble pulsation distal to the compression. Artery not removed but one blade of clamp rewound with plain catgut and left in place.

CONCLUSIONS

1. Gradual automatic occlusion of the larger arteries at one operation can be uniformly produced by the method herein described.

2. Model 2, clamp with plain sterile catgut on one or both blades gives the best results. The absorption of iodin catgut is slow and uncertain.

3. The clamp with its elastic bands and catgut is perfectly tolerated by the tissues. The clamp becomes surrounded by a capsule of dense fibrous tissue, produces no irritation and may remain in place indefinitely.

4. The collateral circulation has an opportunity to develop during the process of gradual occlusion of the artery.

5. The ideal result is complete occlusion and division of the artery with tapering of the occluded ends and little or no clot formation.

6. The danger of secondary hemorrhage is slight: first, because the occlusion is gradually produced, and second, on account of the capsule of dense fibrous tissue which forms around the clamp and unites the two occluded ends of the vessel.

The accompanying table shows the results of our experiments.

I desire to thank Dr. M. M. Patton for very valuable services rendered in the work, also Drs. Jennings, Greenwald, Hamblen and the staff of the Washington State Veterinary College, Spokane, for their assistance.

306 Paulsen Bldg.

ABSTRACT OF DISCUSSION

DR. ROBERT C. COFFEY, Portland, Ore.: I was recently in Spokane and had Dr. Neff explain all his experiments to me, and I went over them carefully with him. It seems to me from his explanation and from what I have read and know of the previous devices for this same purpose, that Dr. Neff has put the climax on the subject of occlusion of arteries for the treatment of aneurysm. I believe he has solved the question of gradual occlusion which can be so regulated that a good collateral circulation may be established before complete occlusion takes place.

Baldness in Men and Women.—Degenerative changes in the blood-vessels and rigidity of the thorax, both characteristics of senility, are found much earlier in man than in woman. Man dies suddenly much oftener than woman. Men suffer from baldness more frequently than women. This is not confined to civilized races, but is found among savages and semi-civilized tribes, as in many of the North American Indians, even where it is the custom for the women, instead of the men to wear their hair short.—Stewart in *Medical Record*.

SENSIBILITY OF THE PERITONEUM AND ABDOMINAL VISCERA *

JAMES F. MITCHELL, M.D.
WASHINGTON, D. C.

Although earlier writers, both physiologists and surgeons, made passing mention of the fact that certain parts of the peritoneum and abdominal viscera are more sensitive than others, Lennander,[1] in 1901, first called attention forcibly to the fact that there is a distinct and constant contrast in the sensibility of the parietal and the visceral peritoneum. His first publication was elaborated by others until the time of his death. By an exhaustive and painstaking series of observations during operations, performed chiefly under local cocain anesthesia, he established the following facts: The parietal peritoneum is intensely sensitive to pain, but not to pressure, heat or cold. The abdominal viscera, on the other hand, possess no sense of pain. In other words, the visceral peritoneum and the abdominal organs, innervated only by the vagus or sympathetic nerves, are not sensitive to pain, and painful abdominal sensations are transmitted only by the phrenic, the lower six intercostals, and the lumbar and sacral nerves, which supply the parietal peritoneum. For the mesentery, his findings are not absolute, though he considered it also insensitive. By the natural application of these facts, Lennander offered hypotheses for the explanation of pain in various abdominal conditions, such as appendicitis, peritonitis or gastric ulcer. These ideas he expressed in a paper before the Section on Surgery of the American Medical Association in 1907, which may be summed up as follows: Pains do not originate within the abdominal organs themselves. Irritation of an abdominal organ first gives rise to pain when it has extended to sensitive tissue outside this organ. Pain then exists through an irritation of the parietal peritoneum. This may be mechanical, as in volvulus; chemical, as in absorption from an ulcer; or infectious, as by means of a lymphangitis in appendicitis, or the direct expulsion of contents from gall-bladder, stomach or intestine. Viscera involved in disease are quite as insensitive as sound ones, while the irritability of the parietal peritoneum is much increased by even a slight inflammation.

Lennander's work acted as a stimulus to investigators and there have appeared many exhaustive papers by surgeons, internists, physiologists and psychologists. Surgeons basing their opinions on findings during operations on human beings have, in the main, upheld Lennander's views. The general tendency is for animal experimenters to oppose them. Psychologists tend to take a middle path, and while admitting that for external stimuli the viscera may be insensitive, assert that nevertheless they possess a certain unlocalized sensibility to internal conditions.

The pain of ileus has been the subject of much discussion. Intestinal colic has been ascribed by Nothnagel[2] to anemia of the intestinal wall and to pressure on the nerves of the bowel wall in consequence of a tonic spasm of its muscular coat. Wilms[3] asserted that all those pains, which we are accustomed to term intestinal colic, are entirely due to the stretching of mesenteric attachments. Lennander found that he could stimulate a loop of human intestine until it became hard and blanched, and still there was no pain unless it tugged on the parietal peritoneum. This explains the fact that we often find dense adhesions between coils of intestine without any discomfort, and yet, when a movable piece of bowel is adherent to the fixed abdominal wall there is always pain. Lennander believed, however, that some forms of colic could not be explained by dragging alone, and these he attributed to a sliding of the parietal peritoneum on its very sensitive subserous tissue. A finger introduced into the abdomen and held firmly pressed against the parietal peritoneum of the anterior wall will not cause pain; but if the finger, while still in firm contact, is moved slightly from side to side, there will be intense pain. This I have often seen demonstrated in the use of a retractor dragged on by an inattentive assistant. We can thus see why a gradual, general distention may not be painful, while unequal distention of an obstructed intestine causes acute pain.

Innumerable tests made by surgeons at the operating table have shown that operative procedures may be painlessly carried out on practically any abdominal organ, provided the parietal peritoneum is avoided. Through gastric or intestinal fistulas the mucous membrane has been tested and has likewise been found to show no perception of touch, heat, cold or pain. Zimmermann,[4] in 1909, reported an extensive series of experiments on himself and on patients, in which the mucous membrane of the stomach and of the rectum was examined without the employment of any anesthetic. Through a stomach-tube or a rectal speculum the mucous membrane was irritated by means of pinching forceps, electrodes and the cautery. In the rectum, above 6 cm. from the sphincter, there was no response to touch, temperature, or electric stimulation; but great differences in pressure were felt. In the stomach likewise, he got no response, and here also there was only a sensation of fulness on great pressure. The esophagus he found sensitive to pressure and temperature, thus accounting for the sensation of warmth on taking hot or alcoholic drinks. This is in accord with the conclusions reached by Hertz, Cook and Schlesinger.[5] Schwenkenbecher,[6] in 1908, described an observation in which he took large doses of menthol, which produces in the mouth a feeling of intense cold. He noted that after the menthol passed the level of the larynx this feeling of cold was not experienced in any part of the intestinal canal until the sphincter ani was reached. He concluded from this experiment that the whole intestinal canal, except its upper and lower ends, is insensitive. Neumann,[7] on the other hand, found the stomach in women very sensitive to differences in temperature. How then can we account for the pain of gastric ulcer? It is well known that gastric ulcers can exist without pain, and their presence first be suspected through perforation or hemorrhage. Lennander asserted that a gastric ulcer remains painless so long as it is not accompanied by a lymphangitis; that the pains of hyperacidity are also due to absorption, by which irritating toxic or chemical substances are carried to the sensitive tissue of the abdominal wall. Mueller,[8] while admitting

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* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

[1] Lennander, K. G.: Centralbl. f. Chir., 1901, No. 8; Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1902, x, 38; 1906, xv, 465; xvi, 19; xvi, 24; see also Tr. Sect. on Surg. A. M. A., 1907, p. 211.

[2] Nothnagel: Arch. f. Verdauungskr., 1905, xi, 117.

[3] Wilms: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1906, xvi, 609.

[4] Zimmermann: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1906, xx, 445

[5] Hertz, Cook and Schlesinger: Jour. Physiol., 1908, xxxvii, 481.

[6] Schwenkenbecher: München. med. Wchnschr., 1908, No. 28, 1495.

[7] Neumann: Wien. klin. Wchnschr., 1906, No. 30, p. 923.

[8] Mueller: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 190 600

that the stomach shows no reaction to touch, heat or pain, as far as external stimulation is concerned, nevertheless maintains that it does react to internal irritations. . . . He believes that the abdominal organs do possess sensation for necessary protection; as from chemical irritation by increased acidity in the stomach, or mechanical irritation by fulness or distention. This sensibility he attributes to the sympathetic nerves, which, though ordinarily not transmitting pain impulses, may do so under abnormal or diseased conditions. He attributes the pain of gastric ulcer, as well as the distress of hyperacidity without ulcer, directly to the action of the increased hydrochloric acid content on the nerves of the stomach wall; and explains the painlessness of latent ulcers by the probable absence of hyperacidity. Mueller's statement was almost immediately answered by Schmidt,[9] who put into his own stomach as much as 30 c.c. of a 2 per cent. solution of hydrochloric acid with absolutely no unpleasant sensations therefrom. The question thus seems far from settled.

The pelvic organs of women have been frequently tested by surgeons during operations under local anesthesia. Their findings have been mostly in accord with those of Lennander. Sampson,[10] Broese[11] and others are among those who have made observations in this field, Broese stating that the diagnosis of ovarian neuralgia should never be made. Mueller and Godscheider claim that pain impulses may be transmitted from these organs by the sympathetic nerve. Meumann,[12] from the psychologic viewpoint, reaches much the same conclusion as Mueller. He believes that we possess internal sensation, but that it is not accurately localized. The uncertainty of these sensations is nothing but their indefinite localization, which depends on the fact that we cannot see their point of origin.

In 1906 appeared the first absolute contradiction of Lennander's ideas. Kast and Meltzer,[13] then and in later publications, reported the results of their animal experiments, chiefly on dogs. Their principal method of examination was to open the abdomen under ether narcosis, and close the wound by means of temporary sutures, the animal then being allowed to regain consciousness thoroughly, when one or more of the sutures was cut, and tests made through a very small opening. Mechanical, thermic and electric irritations were employed and any possible mesenteric tug was carefully avoided. They concluded that the abdominal organs of dogs, examined through a small opening, are undoubtedly sensitive; that this sensibility rapidly decreases on exposure or withdrawal of the viscera, but increases again after exposure long enough to produce inflammation. In cats and rabbits the sensibility is the same, but even more fleeting, and weak animals show less than strong ones. They see no reason why their findings should not apply as well to human beings. In offering an explanation for the conclusions reached by Lennander and other surgeons, Kast and Meltzer suggested that: First, the examinations were made through a large opening after exposure to the air or withdrawal of the viscera, and second, that they were all made during operations under local anesthesia. They found that a small dose of cocain, injected subcutaneously or intramuscularly, exerts almost immediately a quieting effect on animals and produces a general analgesia, thereby causing the sensibility of the parietal, as well as the visceral peritoneum and of the viscera themselves, to disappear. Their experiments were repeated by Mueller,[8] who obtained exactly opposite results. Ritter,[14] on the other hand, verified the conclusions of Kast and Meltzer; while Hotz,[15] experimenting on dogs under morphin narcosis, reports that manipulations of even strangulated or peritonitic intestines do not cause any expression of pain, and manipulation of the mesentery causes pain only when a tug makes traction on its root. In 1907, before this section, I[16] reported two cases in which I had opened the abdomen in men without the use of any anesthetic, and found that there was the same contrast between parietal and visceral peritoneum as when cocain was used. Haim[17] had a similar experience after opening the abdomen under general anesthesia and allowing the patient to regain consciousness. These observations were given little weight by Kast and Meltzer in their paper of 1909, because they were too few in number and not made on perfectly normal individuals. Ritter's views as to the general effect of cocain have changed with his different papers. At first (1908) he agreed with Kast and Meltzer; then (1909) he stated that cocain is purely local in its action, and later, he reported some interesting animal experiments in which he found that by injecting 5 c.c. of a 1 per cent. solution of cocain into the crural vein of a dog, all painful sensations were wanting in from three to five minutes. Vessels or nerves could be painlessly tied, or the skin burned with the cautery. This general anesthesia lasted half an hour or longer, when the animals gradually became normal.

An interesting communication has appeared this year by Harrison.[18] Into a superficial vein on the back of his hand, he injected slowly, during a period of thirty minutes, 5 grains of cocain in a 2 per cent. solution. Dizziness and palpitation made it seem wise to stop with this amount. Tests were at once made and results corresponded in an incomplete way with those reported by Ritter on animals. Cerebration was normal, except for inability to keep the mind on one subject. Motor power was unimpaired. There was marked analgesia everywhere. A small incision was made on the anterior part of the leg. It could be felt and caused a mere trifle of pain. Two or three small nerves in the fat were cut, each causing a slight twinge of pain. He concludes that the analgesia was probably sufficient for the performance of operative procedures without great pain, but that the relatively enormous dose of cocain necessary for even imperfect results makes it impossible for human surgery. It cannot be conceived then that the small amount of cocain used in an ordinary laparotomy could have any influence on peritoneal sensibility.

Ritter (1909) assails Lennander's findings. He bases his opinion on animal experimentation under morphin narcosis, agrees in general with Kast and Meltzer, and believes that the sympathetic nerves transmit sensory impulses. An entirely new principle is introduced in his experiments, associating visceral sensation directly with the blood supply. The ligation of blood-vessels, he says, is the only means of testing which eliminates all possibility of error. He finds this painful in every instance. Mesenteric tug he eliminates by means of double ligation, the proximal ligature always causing pain, but the distal ligature only when it is applied first. All parts of the abdomen are thus sensitive, non-vascular parts less so than those rich in blood-vessels. The vessels themselves are most sensitive. Cocain acts only as a local anesthetic in the abdomen, and when applied about mesenteric vessels renders anesthetic the viscera supplied by them. Ritter believes the negative findings reported by surgeons to be due, not to cocain, but to the injury which the laparotomy does to the finer sensible nerve fibers in the abdominal cavity. This injury is important in the production of shock. He thinks it therefore wise when working in the abdomen under local anesthesia, to cocainize every vessel of any size before ligating it.

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[9] Schmidt: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1909, xix, 278.

[10] Sampson: Ann. Surg., 1905, xli, 216.

[11] Broese: Zentralbl. f. Gynäk., 1910, xxxiv, 1523.

[12] Meumann: Arch. f. d. ges. Psychol., 1907, ix, 26.

[13] Kast and Meltzer: Med. Rec., 1906, lxx, 1117; Mitt. a. d Grenzgeb. d. Med. u. Chir., 1909, xix, 586.

[14] Ritter: Centralbl. f. Chir., 1908, No. 20; Arch. f. klin. Chir., 1909, xc, 389; Berl. klin. Wchnschr., 1909, xlvi, 1701.

[15] Hotz: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1909, xx, 257.

[16] Mitchell: The Journal A. M. A., 1907, xlix, 198.

[17] Haim: Centralbl. f. Chir., 1908, No. 11.

[18] Harrison: Boston Med. and Surg. Jour., 1911, clxiv, 151

In a paper published in 1910, Nystroem,[19] a former assistant of Lennander, again champions his theories, and discusses in detail opposing contributions. He questions the value of animal experimentation, and calls attention to the opposite results obtained by different investigators in the same experiment, as well as the varying results with animals of different species. He repeated the test of Kast and Meltzer on animals, and was able to get no evidence of pain unless the mesentery was dragged on. He then made the same observation on a man during an operation for hernia. Under light ether narcosis the peritoneum was opened by a small incision. A loop of intestine was found presenting at the opening. The peritoneum was temporarily closed, and the patient allowed to regain consciousness. The parietal peritoneum was then found very sensitive, but the man was not aware of any irritation of the intestine unless the mesentery was pulled on. Nystroem concludes that the contradiction of Lennander's work is not to be unhesitatingly accepted, although he admits that there are many things which cannot yet be accurately explained. He suggests that further investigation of Ritter's idea of the relation between sensibility and blood-supply in the human abdomen is most important. Since reading Ritter's paper I have not had an opportunity of testing this except for the omentum, but I recall many cases in which large portions of vascular omentum have been painlessly excised, or sections of gall-bladder or liver removed for examination without complaint.

Daily experiences at the operating table, and in the after-care of patients whose abdomens have been drained, impress on us the greater sensitiveness of the parietal peritoneum. This is apparent even under ether narcosis. A patient may lie perfectly quiet during the manipulations of a gastroenterostomy, but will show evidence of disturbance when gauze pads which have been in contact with the abdominal wall are withdrawn, or when the viscera are replaced. In the production of shock, too, the greater influence of manipulation of the parietal peritoneum or mesenteric attachments is noticeable. This I have observed, especially in operations about the bile passages. Exposing, opening and draining a gall-bladder causes little disturbance in the patient's condition, but as soon as there is any extensive interference about the foramen of Winslow there is immediate evidence of shock. This region has been shown to be especially rich in spinal nerves, and I have found it most difficult to explore under local anesthesia. Likewise, a woman on whom I was doing a splenectomy for Banti's disease was in excellent condition until a ligature was tightened about the pedicle of the spleen, when she almost immediately passed into profound shock. If Ritter's view of blood-vessel-sensation association holds true, this might here be offered as an explanation. Mummery and Symes[20] have shown that manipulations of the parietal peritoneum and mesenteries in fully anesthetized animals produce shock much more rapidly than the same disturbance of the viscera. With local anesthesia it is very evident that only those procedures are painful which involve the parietal peritoneum or mesenteries.

A drain which lies against the abdominal wall is always more painful in its removal than one which only touches the viscera. We thus learned long ago, in the days of large gauze drains, to protect the peritoneal edges of our wound by tucking in rubber tissue. We can recall the pain resulting from the old method of suturing the gall-bladder to the peritoneum, and the consequent abandonment of this procedure. All these observations, made after opening the abdomen, are subject to the criticism that sensation may have been interfered with by the laparotomy itself.

Kast and Meltzer, in drawing their conclusions, end by stating that "surgical experiences on men offer no proof that the viscera of normal man in the normal closed body can feel no pain." While this is naturally a hard condition to answer, it has seemed to me that much might be learned by the careful analysis of all abdominal pains in patients about to be subjected to laparotomy. It has, therefore, been my custom for the past few years to write down the findings before operation, and make also a written prediction as to what was to be expected on opening the abdomen. A comparison of these predictions with the operative findings has given interesting results in support of the marked contrast between visceral and parietal peritoneal involvement. Many referred pains may be explained by the relation of the involved organ to the parietal peritoneum. Thus the first pain of an acute appendicular attack is most often located in the epigastrium. Time and again I have found with the abdomen open under local anesthesia that this pain could be accurately reproduced by traction on the mesentery of the appendix. The pain is, under these circumstances, accompanied by nausea, just as is so often seen in irritating the neck of a hernia sac. While doing a cocain appendectomy on a physician, Dr. S., I obtained his consent to some tests, the nature of which he did not know. He was anxious to watch the operation and see his appendix in place, and so was allowed to have his head raised for this purpose. The appendix presented readily at the opening in his unusually thin abdominal wall. It was clamped across, and caused no inconvenience. Then, by making traction on the mesentery, I could at will cause him to sink back with marked pallor, nausea, and complaint of violent pain in the epigastrium, which he described as "my old friend." These phenomena disappeared when the mesentery was released, and he was able to watch the completion of the operation. In a case of gall-bladder fistula with total occlusion of the cystic duct, as shown by a later operation, I was able, by injecting into the gall-bladder hydrogen peroxid and placing a finger over the fistula, to cause the typical pain of gall-stone colic. The man complained of agonizing pain about the right shoulder blade, which immediately disappeared when the finger was removed from the opening. I believe this pain to have been caused by traction of the distended gall-badder on the posterior peritoneum, and not by the mere distention itself; for a probe introduced into the gall-bladder and pushed with some force against its walls did not cause discomfort. I have seen the referred pain of ovarian disease, that is, down the inner aspect of the thigh, in an interesting case.

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[19] Nystroem: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1910, xxi, 125.

[20] Mummery and Symes: Brit. Med. Jour., 1908, ii, 790.

This boy (Mr. S., Case 1,034), aged 19, had been operated on eight years before for supposed appendicitis. The appendix was not found, and there was no pus, but apparently after considerable traumatism the wound was drained on acount of oozing from torn surfaces. He came to me complaining of frequent attacks of abdominal pain and nausea, which were not accompanied by fever. A careful analysis of his pains showed that they could be divided into three distinct groups: First, epigastric pain; second, diffuse pain in the region of his scar near the iliac crest, and third, pain down the inner side of his right thigh, simulating referred ovarian pain. It was concluded that there were three sets of adhesions between movable organs and parietal peritoneum; first, about the appendix; second, about the scar, and third, to the pelvic wall corresponding to the outer side of the broad ligament. At operation through a rectus incision there was found an appendix kinked on itself and bound by dense adhesions; adhesions between the cecum and parietal peritoneum about the scar, and a long tongue of omentum adherent to the pelvic wall about the iliac vessels. The appendix was removed, the omentum ligated and divided, and some of the adhesions about the scar separated, but raw surfaces left. The boy has remained well now for two years and has had no return of pain in the epigastrium or thigh, but occasionally some pain in the region of the old scar.

In acute conditions the findings are quite as constant. True muscle spasm is always due to inflammation of the anterior and lateral parietal peritoneum, and it is possible to make out accurately the extent of this involvement. While there may be some resistance to pressure on deep palpation in centrally located lesions, true protective muscle spasm comes only from inflamed parietal peritoneum. By the character and amount of pain and by the resistance to palpation, it is possible to tell before operation whether the lesion will be found deeply situated, as between omentum and intestinal coils, or directly against the parietes. The two following cases, operated on the same day, will serve as illustrations.

Mrs. Y., Case No. 1,086, gave a history of slight pain, referred to the umbilicus, followed by nausea and vomiting, and later by temperature. The pain was at no time very severe and had entirely disappeared on the third day of her illness. Examination showed a mass in the right iliac fossa. This was only slightly sensitive on deep pressure. There was no rigidity of the abdominal wall and no suggestion of muscle spasm. She was running a high temperature and it was predicted that the condition was an appendix abscess, well protected and not involving the parietal peritoneum. At operation there were found several ounces of foul pus, entirely walled in between intestinal coils and covered over by omentum. There were nowhere any adhesions to the parietal peritoneum. The tip of a long appendix, gangrenous and perforated, was lying in the abscess cavity. The base of the appendix was outside and entirely uninvolved.

Mr. F. (Case 1,084) was brought into the hospital with a history of forty-eight hours' illness, starting with violent pain about his umbilicus and in the right side, accompanied by nausea, vomiting and high temperature. His physician stated that the pain was so severe that it was necessary to administer chloroform before bringing him to the hospital. Examination showed respiratory movements on the right side limited and acute tenderness, rigidity and muscle spasm throughout the whole right flank, extending nearly to the costal margin. In this instance it could be definitely stated that the appendix was lying in contact with the parietal peritoneum and that there was involvement of the parietal peritoneum of the whole right flank. At operation, omentum, cecum and ascending colon were found adherent to the parietal peritoneum, limiting an abscess lying directly against the lateral abdominal wall. A gangrenous and perforated appendix was found, running up anterior to the colon, its tip adherent to the edge of the liver, thus lying in its whole length directly against parietal peritoneum.

Mr. S. (Case 977) was seen in an acute illness of several days' duration, which had been diagnosed by the attending physician as cholecystitis. There was no jaundice; but his pain, which had started in the epigastrium, was later most intense high up in the right flank and referred to the right shoulder blade. At operation there was found an abscess between the ascending colon and parietal peritoneum, containing a perforated appendix whose tip was adherent to the gall-bladder.

Another interesting patient came into the hospital with strangulation of a right inguinal hernia, accompanied by a temperature of 103 F. The hernia was reduced by an intern. Two days later the patient still had temperature and high leukocytosis, although his pain had entirely disappeared, and there was no tenderness or rigidity on pressure. Operation was done for the cure of his hernia. Through the internal ring the appendix was palpated and there was found a mass about its tip entirely encircled by a tongue of omentum. The appendix and omental mass were delivered through the ring and removed without separating the adhesions. The specimen showed a small abscess about the perforated appendix tip, which, however, had given no symptoms of pain, because entirely protected from parietal peritoneum by the surrounding omentum.

Our records show numerous similar cases, which, to me certainly, offer an evidence of a definite contrast in the sensibility of the parietal and visceral peritoneum in the unopened abdomen in man. Without denying the usefulness of animal experimentation in this particular field, we must insist that its results cannot outweigh the mass of surgical evidence. We agree with Nystroem that, while there are some weak points in Lennander's hypotheses, they appear to give a more rational explanation of the phenomena of abdominal pain than does the theory depending on an imaginary pain-carrying power of the sympathetic nerves.

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ABSTRACT OF DISCUSSION

Dr. W. LeMoyne Wills, Los Angeles: Through the courtesy of Dr. Mitchell I have read his paper and have found that he has quoted the experimentation and literature of the last ten years, much of which I could not have obtained if I had wanted to; and it seems to me from the reading of the paper that it is the "Lennander theory" against the field, and most of us are willing to accept Lennander, and we must accept his theory until it is contradicted by equally good authority and observations. The German theorists and experimentalists have not gone so far as Dr. Mitchell has in his endeavor to make the experimentation and clinical findings of practical use. He has covered the ground so thoroughly that it is unnecessary to say more than that it is an instance of American ingenuity in turning the theories and experiments of foreign investigators to account in the way of securing the most practical results. If, as Dr. Mitchell has tried to show, he can make the diagnosis by pain more practical and useful, he will do us a great service. The average doctor and surgeon and patient care little about the hair-splitting distinctions as to whether it is this nerve or that nerve, or this traction or that traction, that produces the pain. What they want is practical deductions from these experiments, which will enable the physician and surgeon to make a better diagnosis, and thereby operate more successfully and get better results.

Balsam of Peru or Salvador.—The "balsam of Peru," so much used in medicine and surgery, comes from a tropical tree found in the republic of Salvador, which exports 130,000 pounds of the product yearly, half of which goes to Germany, nearly as much to the United States, with the small remainder to France.—*Daily Consular and Trade Reports.*

THE SANITARY RECORD OF THE MANEUVER DIVISION *

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Since July 10 the most of the organizations composing the Maneuver Division of regular troops at San Antonio, Texas, have been returned to their stations.[1] It is, therefore, an appropriate time to review the health conditions and sanitary administration of this camp, which has established a record that is unique in our Army for the smallness of its sick-list, the excellence of its sanitary [illegible] and the completeness in organization of [illegible] The division consisted of eight regiments of infantry, two of cavalry, two of artillery, and the usual quotas of engineers, signal corps, and hospital corps. The latter had in addition to the regiment, four ambulance companies and four field hospitals. These were complete in equipment so far as the Medical Department could supply them, but one ambulance [illegible] field hospital were never supplied by [illegible] Department with their mounts and draft animals. As regards personnel, although every garrison in the United States was stripped to an irreducible minimum to supply medical officers and hospital corps men for these organizations, there was a deficiency of twenty-one medical officers and 129 men below the authorized strength. This did not seriously impair the efficiency of the medical service of the division for field work, as it was itself much below its tactical strength, having only about 12,000 men instead of nearly 20,000, which it should have at war strength. These facts demonstrated clearly, however, the numerical inadequacy of the medical establishment of our Army, and if a second division had been called out, as at one time seemed probable, the situation in this respect would have been acute. The complete medical equipment and supplies for the division, including a base hospital of 500 beds and two evacuation hospitals of 324 beds each were shipped from the Field Medical Depots at Washington and St. Louis, accompanied by a detachment of the Hospital Corps to prevent loss or side-tracking, and arrived at San Antonio before the last troops were detrained.

SANITARY ARRANGEMENTS

A portable field laboratory was for the first time added to the medical equipment of this division for diagnostic and sanitary purposes. The base hospital was established at the neighboring post, Fort Sam Houston, for the reception of serious cases, but the evacuation hospitals which were intended for use on the line of communications, not being needed, were not manned or opened. The chief surgeon of the Division was Col. H. P. Birmingham, and the sanitary inspector Major Paul F. Straub, both of the Medical Corps, U. S. Army, and the latter a member of the General Staff.

The disposal of wastes is a matter of elementary importance in camp life and new and interesting developments were reached in this camp. In the vexed question of disposal of excreta, the old latrine pit, which had been thoroughly discredited by the better experience of the Spanish war was succeeded by the trough filled with milk of lime and emptied by an odorless excavator wagon and pump which was devised by the distinguished board which investigated the camp epidemics of typhoid fever in 1898 and of which Reed, Vaughan and Shakespeare were the members. This system broke down in rainy or freezing weather and in sandy soils and was gradually displaced by the theoretically perfect, but practically cumbrous incinerators, which did good service in fixed camps and with skilled handling, but were not mobile and were very costly. The mobilization of March 6 was so unexpected and so rapid that no time was given for the purchase and erection of these elaborate constructions and so a system was adopted which has been previously tried on a small scale. A narrow, deep trench, 18 to 24 inches wide, is dug and over it is placed a box seat, entirely fly-proof, with self-closing covers and a urinal at one end. This sink-box, as Harvard terms it in his excellent "Military Hygiene," can be knocked down for transportation, is movable, and is removed once a day, and the pit burned out with hay sprinkled with crude petroleum. The box was at the same time cleaned and then replaced. The contents of the pit were in this way sterilized so as to give no putrefactive odor after even three months of use. Besides the greater simplicity, mobility and quickness of installation of the sink-box as compared with incinerators, the Quartermaster's Department estimated that the cost of the sink-box system was $900 a month for the whole camp, whereas incinerators of an approved type would cost for material and labor $30,000 a month. The kitchen wastes, both solid and liquid, were also consumed by fire, in a kitchen crematory which consisted of a shallow pit a foot deep, 4½ feet long, and 2½ feet wide, filled to the level of the earth with broken stone and surrounded by a wall of clay or stones a foot high. A fire was kept burning on this and consumed all garbage thrown on it while the heated stones quickly evaporated the slops.

Horses in camp were tied side by side to a heavy rope called a picket-line and so their droppings were easily collected and with the straw bedding hauled away and burned. The picket-line areas were also sterilized once a week by burning them over with straw and crude petroleum, thus effectually disposing of the fly larvæ and of all odors. Ten gallons of oil were used for each burning of a picket line. These several precautions effectually kept down the number of flies and afforded no opportunity for their access to infectious material.

The sanitary police of the camp in other respects also was rigidly supervised by the medical officers, so that this crowded camp site, which had been used continuously for four months, when vacated presented nothing offensive to sight or smell.

The water-supply was from the water system of Fort Sam Houston and was artesian in origin and entirely above suspicion.

HEALTH OF THE TROOPS

The health of military commands is usually measured by the constantly non-effective rate which represents the average number constantly sick in each thousand men. This was for the Maneuver Division 22 per thousand up to the first of July, and its smallness can be appreciated when it is stated that this rate was 34 for all troops in the United States for the year 1910. In other words, the health of these soldiers in camp, sometimes living in deep mud and at other times in clouds of dust and under a semitropical sun, was better than in barracks surrounded by the comforts and sanitary appliances of post life.

The largest cause of morbidity was venereal diseases (4 per thousand), and next came measles and mumps (3 per thousand), the latter affecting almost exclusively the

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* Published by authority of the Surgeon-General.

[1] The maneuver division went out of existence on August 7 and the troops remaining comprise a brigade under the command of Brigadier-General Ralph W. Hoyt

newly arrived recruits. The actual number of admissions for the more important camp diseases were: typhoid fever, two; malaria, nine, all benign tertians; simple diarrhea, 119; dysentery, twenty-nine.

TYPHOID PROPHYLAXIS

Perhaps one-fourth of the troops arrived at San Antonio already immunized by voluntary antityphoid inoculations given them at their posts. It was concurrently determined by the Division Commander and the War Department that the time had arrived to make this procedure compulsory for troops taking the field, and it was so ordered and carried out as rapidly as the prophylactic culture could be supplied from the laboratory of the Army Medical School. The technic was simple. The site of puncture, usually the outer side of the left arm, was sponged off with alcohol and a small area sterilized with tincture of iodin, the injection made with a sterile syringe and the puncture sealed with collodion. The first dose is 0.5 c.c., the second and third being 1 c.c. each. An interval of ten days is allowed between doses, the entire procedure thus taking twenty days. The injection is made into the subcutaneous connective tissue and not into the muscles. There was practically no puncture infection, and the reaction was mild or absent in 90 per cent. of the cases treated. In no case was it followed by serious results. There were up to July 1, 8,097 men immunized.

1898

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Second New Jersey.	1,153	185	318	29	32
First Wisconsin ...	1,232	209	311	46	48
Fiftieth Iowa	1,097	164	253	33	33
Ninth Illinois	1,288	153	248	18	28
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Fourth Virginia	1,274	135	231	21	28
Forty-Ninth Iowa...	1,236	378	612	50	50
Total.........	10,759	1,729	2,693	248	281

1911

TABLE SHOWING FOR THE ORGANIZATIONS COMPOSING THE MANEUVER DIVISION AT SAN ANTONIO, TEXAS, THE MORBIDITY AND MORTALITY FROM TYPHOID FEVER, MARCH 10 TO JULY 10, 1911*

Organization	Mean Strength June	Cases of Typhoid Cer. and Prob.	Deaths from Typhoid Fever	Deaths from All Diseases
Eleventh infantry	924	..	..	..
Fifteenth infantry	969	..	..	2
Eighteenth infantry	1,022	..	..	..
Thirteenth infantry	929	..	..	..
Twenty-second infantry..	1,033	..	..	..
Tenth infantry	1,016	..	..	1
Seventeenth infantry ...	954	..	..	..
Twenty-eighth infantry..	951	..	..	..
Third field artillery.....	847	..	..	2
Fourth field artillery....	741	..	..	1
Engineer battalion	536	..	..	1
Signal corps	197	..	..	..
Ninth cavalry	744	..	..	..
Eleventh cavalry	1,143	..	..	3
Sanitary troops	795	1†	..	1
Total.............	12,801	1	0	11

* In addition to the above a civilian teamster, not immunized, was admitted for typhoid fever in April.

† This patient, a private of the hospital corps, had not completed his immunization, having taken only two doses. The case was very mild and would perhaps have been overlooked but for the rule that blood cultures were made in all cases of fever of over forty-eight hours' duration. The Widal reaction has no diagnostic value in immunized persons, as all respond to it. Forty-nine cases of typhoid fever with nineteen deaths were reported as occurring in the City of San Antonio during this period.

The immense advance in camp sanitation and particularly the value of this protective measure can be estimated by comparing the typhoid incidence of this camp with that of the Second Division, Seventh Army Corps, which was organized at Jacksonville, Fla., about June 1, 1898, and remained there in camp until October; some of the regiments leaving in September. This division was not conspicuously unfortunate in its typhoid record for that time, and is selected because of the close similarity of its conditions of service to those of the Maneuver Division. The two divisions were encamped in nearly the same latitude and for about the same length of time, and each had a good camp site and an artesian water-supply of unimpeachable purity. While the period in camp of the Second Division, Seventh Army Corps was later in the year, the number of men involved is larger for the Maneuver Division. The accompanying table referring to the former is taken from the celebrated "Report on Typhoid Fever in U. S. Military Camps in the Spanish War," by Reed, Vaughan and Shakespeare, Vol. 1, page 609.

REPORT ON 140 RECENT CASES OF PSORIASIS IN PRIVATE PRACTICE UNDER A STRICTLY VEGETARIAN DIET*

L. DUNCAN BULKLEY, A.M., M.D.
Physician to the New York Skin and Cancer Hospital, Consulting Physician to the New York Hospital, etc.
NEW YORK

In spite of repeated communications[1] on the subject the medical profession still does not seem to realize the value of a strictly vegetarian diet in psoriasis; and yet I could refer to many intelligent patients in private practice who have said, "You may quote me as a striking instance of the unquestionable value of this element in treatment."

It occurred to me, therefore, to keep a list of patients in private practice whom I had observed and treated during the past two years, and who have been under a vegetarian diet, and, after studying their records, to present the results obtained; the total number of the cases is 140. Some of the patients have been under observation and more or less treatment for many years; the larger proportion of them were first seen during the past two years; but, as will be mentioned later, the older and the newer cases alike confirmed the value of a strictly vegetarian diet, often in a very striking manner. It should be stated that careful notes were recorded of all these cases, and full entries made at each and every visit; I may add that most of the cases to be analyzed were also watched by my office associate, Dr. Paul E. Bechet, who is equally impressed with myself in regard to the beneficial effect of the plan advocated.

Psoriasis is such an inveterate disease that many patients applying for treatment are often convinced by what they have heard from physicians and others that the disease is incurable, and it is often very difficult to get the patient to submit to the proper dietary treatment for a long enough period to secure perfect results. Moreover, it not infrequently happens that even while maintaining a strictly vegetarian diet, there will be an outbreak of the eruption, more or less severe, and the patient is naturally discouraged, and may drop the diet, not recognizing that there are other causes which may

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

[1] Tr. First Internat. Congress of Dermatol., Paris, 1889, p. 892; Tr. Med. Soc. New York, 1895, p. 151; Tr. Third Internat. Congress of Dermatol., London, 1896, p. 734; THE JOURNAL A. M. A., Nov. 17, 1906, p. 1630.

disturb the metabolism and induce the recurrence of the disease. This subject will be more fully considered later.

Whenever I have presented the subject some one has always opposed the vegetarian plan of treatment by referring to the constantly quoted report of a certain Dr. Passavant, who asserted that psoriasis could be cured by an exclusively meat diet. Although I have already exploded this fallacy on a former occasion,[2] I feel that I must briefly state the facts in order that this contention may be set at rest: for the text-books all refer only to this single report, published over forty years ago, and never confirmed by any one since, as far as I can find in literature, whereas many have more or less supported the value of a strictly vegetarian diet in psoriasis.

The facts are briefly these. In 1867 Gustav Passavant of Frankfort, Germany, in an open letter to Prof. F. Von Hebra,[3] reported that having suffered for twenty-five years from psoriasis he was soon free from it after entering on an almost absolute meat diet, including soup, pork, fats, cod-liver oil, milk and bacon, and practically no vegetables or bread; he advised also against wine, beer, coffee and tea, and spices. He cited one case of squamous eczema also relieved by this treatment.

There are a number of points in connection with this brief report which quite invalidate any importance which might be attached to it. Dr. Passavant does not mention if possibly he used any treatment, internal or external, in connection with the diet; then, he does not state if the improvement in his condition lasted any length of time, or if he had any return of the eruption, either under the diet or without it; he does not mention the season of the year, for we know that psoriasis will sometimes disappear spontaneously with the changing season; finally, on analyzing the diet mentioned, it is not really a meat diet, as he emphasizes pork, fats, cod-liver oil, milk and bacon, which contain very little nitrogen. However, he mentions one single other case, and that of eczema, which was benefited by his plan of treatment.

On the other hand, Professor Hebra,[4] to whom Dr. Passavant addressed his open letter, ridiculed the claim made, some years after its publication, and, as far as I can find, there has been no subsequent corroboration in literature of the correctness of the claim of Passavant that psoriasis can be cured by a meat diet. Surely if there were any truth in it, some proof would be forthcoming in the forty-four years which have elapsed since its publication. On the other hand there are abundant, though brief, allusions in literature as to the injurious effect of excessive meat-eating in psoriasis. My experience, dating back, some of it, for twenty-five years, shows conclusively that not only does a meat diet increase psoriasis, but that an absolutely vegetarian diet is of the very greatest benefit in this disease, and in certain cases is capable of alone causing the disappearance of a long-standing eruption, without the use of any internal or external medication whatever. It is sincerely to be hoped that the senseless reference to the Passavant incident will now disappear from our text-books and literature, as they lead only to confusion and misjudgment.

Psoriasis is undoubtedly one of the most rebellious of all affections appearing on the skin, discouraging alike to the physician and patient. While a certain few cases will yield admirably to well-directed treatment, and perhaps remain free for a varying length of time, the disease is pretty sure to return in a very large proportion of instances, under all the forms of treatment which have hitherto been recommended in the text-books and literature. Certain it is that local treatment alone, which is often very effective when properly carried out, can accomplish nothing in the way of a permanent cure.

Psoriasis is not so very common an eruption, as it forms, generally, about 3.5 per cent. of cases appearing in various localities. It is rarely found, however, in the warmer climates, and during a prolonged trip to the far East I could not learn of any cases at all among the natives in various countries who lived mainly on a vegetarian diet, principally rice.[5] The disease affects all ages, and the sexes about equally, as may be seen from Table 1, which represents separate patients, with no duplicates, as far as is known.

TABLE 1.—AGE AT TIME OF CONSULTATION

	Private Practice			Public Practice			
Age (years)	M.	F.	Total	M.	F.	Total	Grand Total
0-5	1	2	3	8	7	15	18
5-10	4	14	18	34	72	106	124
10-15	6	11	17	59	94	153	170
15-20	28	55	83	80	140	220	303
20-25	47	63	110	134	164	298	408
25-30	67	57	124	173	153	326	450
30-35	71	34	105	160	96	256	361
35-40	60	22	82	106	57	163	245
40-45	38	9	47	81	52	133	180
45-50	30	11	41	45	44	89	130
50-55	18	16	34	33	27	60	94
55-60	7	11	18	26	15	41	59
60-65	7	6	13	24	16	40	53
65-70	3	3	6	7	10	17	23
70-75	2	..	2	7	3	10	12
75-80	1	..	1	2	..	2	3
Age unknown	3	..	3	..	7	7	10
	393	314	707	979	957	1,936	2,643

The 707 cases in private practice occurred among 18,705 miscellaneous skin cases, giving a percentage of 3.7, and the 1,936 in public practice among 49,622 cases, making over 3.8 per cent. It will be seen that patients come at all ages for treatment, there being even three between 75 and 80 years of age, while by far the largest proportion were between 20 and 30 years of age, namely 858, or almost one-third of the whole.

The age at which the eruption is likely to develop first is seen in Table 2 taken from patients in private practice.

TABLE 2.—AGE AT FIRST APPEARANCE OF PSORIASIS
PRIVATE PRACTICE

	Number		
Age (years)	Male	Female	Total
1/3	1	..	1
1	3	..	3
1–2	2	3	5
2–3	3	6	9
3–4	1	4	5
4–5	3	8	11
5–10	26	49	75
10–15	41	77	118
15–20	67	53	120
20–25	85	31	116
25–30	43	22	65
30–35	39	12	51
35–40	29	9	38
40–45	14	8	22
45–50	12	12	24
50–55	8	8	16
56	..	3	3
59	..	1	1
60	1	..	1
61	..	2	2
63	..	1	1
64	..	1	1
Age unknown	15	4	19
	393	314	707

From this table we see that the disease may develop very early in life, in one instance at 4 *months of age*, newly arrived recruits. The actual number of admissions for the more important camp diseases were: typhoid fever, two; malaria, nine, all benign tertians; simple diarrhea, 119; dysentery, twenty-nine.

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[2] THE JOURNAL A. M. A., Feb. 22, 1908, p. 582.
[3] Passavant, G.: Arch. f. Heilk., 1867, p. 251.
[4] Hebra: Lehrbuch für Hautkrankheiten, 1874, i, 352.
[5] Bulkley: Notes on Certain Diseases of the Skin Observed in the Far East, Jour. Cut. Dis., January, 1910.

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In such a disease as psoriasis, and with private patients, who cannot always be controlled or seen as often or as long as desired, it is very difficult to make concise and correct statements in regard to the carrying out of any particular line of treatment, or the results therefrom. But Table 5 will give some idea of the length of time during which a vegetarian diet has been carried out, more or less strictly, by the patients whose cases are under consideration.

TABLE 5.—DURATION OF VEGETARIAN DIET

Patients	Number Male	Number Female	Number Total
Seen once	18	12	30
1 month or less	13	13	26
1 to 2 months	5	5	10
2 to 4 months	6	6	12
4 to 6 months	..	5	5
6 months to 1 year	11	10	21
1 to 2 years	5	6	11
2 to 3 years	3	3	6
3 to 4 years	1	3	4
4 to 5 years	1	1	2
5 to 10 years	2	5	7
10 to 20 years	2	3	5
20 to 30 years	1	..	1
	68	72	140

It is actually true that quite a number of these patients have continued a strictly vegetarian diet for months and even years, and I have frequently been told that they would not return to a mixed diet under any consideration. In some instances they have relaxed more or less, with perhaps but little ill effect on the condition of the skin, when all other elements of treatment were rightly carried out. But time and again patients who have relapsed into free meat-eating have returned with a fresh outburst of eruption, or great aggravation of any that had remained, and they intelligently recognized the cause, and have willingly taken up the vegetarian diet again, because of the great benefit which they had previously experienced from it.

The question arises as to the length of time it is necessary to continue the vegetarian diet. I am accustomed to tell my patients that this may be indefinitely; for if a faulty nitrogenous metabolism and excretion is at the bottom of the eruption, as it seems to be, this may recur whenever the intake of proteids exceeds the power of the system to handle them.

In some instances a return to a moderate mixed diet has not seemed to increase the tendency to the eruption, but in very many cases it has been recorded that any indulgence in a great amount of nitrogenous diet has caused a return of the skin lesions. So that we must infer that with a certain small proportion of human beings the organs are not able properly to assimilate much proteid substance.

It may be asked if the improvement observed to occur on a vegetarian diet bears any relation to the seasons of the year, as it is well known that psoriasis will often disappear at certain seasons. It may be answered that this is not the case. In the cases here analyzed the patients have been treated and watched throughout the year, and the improvement occurs shortly, irrespective of the season.

It may also be questioned as to whether the improvement observed was not due to some medication, internal or external. In reply I may say that this has been tested in a number of patients, over half a dozen, and these mostly inveterate cases, some of whom were very skeptic, owing to long years of unsuccessful treatment elsewhere. Explaining the matter fully, these patients have had absolutely no other treatment, internal or external, and have watched with great interest as certain lesions have ceased to scale, then faded, and finally disappeared entirely, leaving only a stain, which ultimately ceased to exist. This has been verified time and again by my associate, Dr. Bechet.

It is true, however, as remarked before, that there will sometimes be a recrudescence of the eruption to a greater or less extent, even while the patient is supposed to be under a rigid vegetarian diet; but I have never seen an outbreak nearly so severe or so persistent as previous ones; the lesions will be small and much less pronounced, and will commonly yield quite readily to appropriate treatment, dietary and medicinal.

This recurrence of eruption may be accounted for in several ways, and does not at all weaken the argument for a vegetarian diet in psoriasis. First, it is always possible that the patient may not have always adhered to the restricted diet as absolutely as reported. Second, the details of an exactly proper vegetarian diet have not yet been all worked out, and it is quite possible that some articles in the vegetable kingdom may lead to the faulty metabolism which is at the bottom of psoriasis. Third, there may be other causes also at work, as yet unrecognized, which favor the eruption. Fourth, there may be such a wrong action of some of the internal organs that even a purely vegetarian diet does not secure a perfect blood condition. (It will be seen from what has preceded that I regard psoriasis as a constitutional and not a purely local affection, although I recognize that the lesions on the skin may be due, in part, to the action of some of the microscopic organisms which abound on the surface, which operate when the soil has become suitable. It would lead too far from our subject to discuss the matter further, and to present the indubitable proof of this thesis.)

We may now very briefly consider the physio-pathologic basis for a vegetarian diet in psoriasis, and some of the principles underlying its successful treatment.

Perverted metabolism, and hence disordered nutrition, is the basis of much disease, whether it be caused by an erroneous intake of nutritive substances or the faulty disposition of them by the various organs of the system.

If we knew as much about the fluid composition of the blood as we do about its cellular elements, and should analyze it frequently, we could undoubtedly determine more about the true pathogeny of disease. But in the urine we have a most wonderful indicator of the blood-state, and if its oft-changing conditions are minutely studied often enough, and intelligently interpreted, we can know much more of the processes of metabolism than can be learned in any other way. Formed as it is directly from the arterial blood, after this has been prepared by the various organs and finally aërated by the lungs, and is on its way to nourish the tissues, the kidney secretion is to be studied in another light than simply as an excretory product. By the different proportions of its many ingredients it represents to us to a certain degree the composition of the blood itself as the kidneys have found it, and the result of their efforts to purify it.[7]

Time fails to permit entering at all largely into the interesting subject of the condition of the urine continually found in patients with psoriasis; suffice it to say that the average of a very large number of carefully made, volumetric analyses showed deviations from the normal which were of the utmost importance, all looking towards an imperfect metabolism of nitrogenous elements. The average specific gravity was 1.026, 1.0[illegible] to 1.040 being not uncommon, and the acidity [illegible] and that it is not so uncommon in childhood, there being 109 patients or over 15 per cent. in whom it appeared up to 10 years of age; but in the next decade there were 238 cases; it may also develop first quite late in life, as there were twenty-five patients over 50 years of age. The most common period for its first appearance was between 15 and 20 years of age.

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[7] Some Problems in Metabolism Occurring in Certain Diseases of the Skin, Jour. Cutan. Dis., April, 19

As is well known, when once well developed, psoriasis tends to remain indefinitely, and Table 3 shows the duration of the disease before coming under observation, in the patients in private practice.

TABLE 3.—DURATION BEFORE COMING

PRIVATE PRACTICE

	Number		
Age	Male	Female	Total
Under 1 year	51	46	97
1 to 5 years	85	73	158
5 to 10 years	80	85	165
10 to 15 years	62	44	106
15 to 20 years	37	33	70
20 to 25 years	30	17	47
25 to 30 years	12	4	16
30 to 35 years	7	1	8
35 to 40 years	4	3	7
40 to 50 years	10	4	14
Unknown	15	4	19
	393	314	707

Here we see a record of its persistence, twenty, thirty or even fifty years, and undoubtedly these numbers would be much larger were it not that so many patients become utterly discouraged, and relatively few of the many existing cases seek further relief after it has persisted for many years, often in spite of varied treatment.

Table 4 illustrates this point in regard to the patients in private practice. There were 152 who were seen only once, many of them in consultation, but of those who were treated there were 338, or over 60 per cent., who were treated less than one year, which is certainly not long enough to effect a change of system necessary to secure freedom from psoriasis. In many of those who were long under observation the records show that they were often irregular and careless in treatment, and many of them were seen before the strict vegetarian diet was rigidly enforced.

TABLE 4.—DURATION OF OBSERVATION IN PRIVATE PRACTICE

	Number		
Patients	Male	Female	Total
Seen once	102	50	152
1 month or less	60	34	94
1 to 2 months	30	25	55
2 to 4 months	23	35	58
4 to 6 months	20	23	43
6 months to 1 year	47	41	88
1 to 2 years	34	33	67
2 to 3 years	20	17	37
3 to 4 years	9	9	18
4 to 5 years	10	2	12
5 to 10 years	18	22	40
10 to 15 years	10	15	25
15 to 20 years	4	5	9
20 to 25 years	4	2	6
25 to 30 years	2	1	3
	393	314	707

Vegetarian diet for health is no new proposition, and needs no defense or explanation; the literature regarding it is extensive, and its positive value has been frequently demonstrated. All are aware that repeatedly vegetarians have far outstripped meat-eaters in athletic contests, while the reverse is almost unknown. The mass of human kind have always subsisted largely or entirely on the products of the ground, and in animal life all work is done on food from the vegetable kingdom.

On the other hand, the consumption of much meat is of relatively modern date, with some exceptions, and is particularly common in cities, the mass of workers in rural districts subsisting chiefly on vegetarian products.

Nor need we dwell long on the injurious effects of a too highly nitrogenized diet on the human system, which has long been recognized and has had able exponents. All are familiar with the necessity of curtailing meat diet in many conditions of the system, and writers have repeatedly called attention to its influence in the production of cancer; the relative absence of cancer among the natives in rice-eating countries, which I also observed in the far East[5] is striking evidence in this direction.

The relation of meat-eating to psoriasis is also no new observation. Brief mention of it has occurred in literature for some time, and over twenty years ago,[6] at the First Congress of Dermatology and Syphilology, in Paris, in 1889, I stated that "excessive meat-eating will also increase the disease, which will frequently yield with much greater rapidity, under the same treatment as before, when the amount of meat taken is lessened, or when it is entirely cut off," as I had observed in private cases for some years. Since that time I have watched and studied the matter continuously, both in public and private practice, mainly the latter, and have reported favorably in regard to the same repeatedly, with increasing confidence; and this is especially true since I have been enforcing the diet most rigidly during the last two years, during which time I have kept the special record of these cases, as already referred to.

During this period I have observed 140 cases of psoriasis who were placed on a strictly vegetarian diet; there were sixty-eight males and seventy-two females, of all ages from 9 to 70 years. The patients have had the disease for varying lengths of time, though there were only ten who had been affected for less than one year; thirty-three had had it for from one to five years, thirty-six from five to ten years, and many for a great length of time, even up to forty years. I may here say, however, that I have seen quite as startling results in those who have been very long afflicted as in recent cases, provided there has been equal faithfulness to treatment.

In regard to the faithful carrying out of the dietetic treatment there have been, of course, varying degrees of fidelity in different patients, but it is interesting to note how willing those who have suffered from the disease for some time are to accede to the plan which offers them a prospect of freedom from their rebellious complaint; on the other hand, in some of the more chronic cases, the patients from their former experience have become so skeptical as to such hopes that it is often very hard to get them to persist faithfully in the diet; while those who have only begun to suffer from psoriasis find it difficult to believe that such a radical change in their mode of life is necessary.

Of the cases here analyzed, in twenty-one the patients were seen but once and must be excluded from consideration; twenty-five were seen but a month or less, and no ultimate conclusions can be drawn from them. Records show, however, that in some of them the almost immediate improvement in the character and appearance of the eruption indicated the benefit of the treatment, and quite probably some of them may have persisted in the diet and possibly may have become freed from the eruption.

As far as can be learned sixty-one patients or nearly one-half the entire number of those whose cases are analyzed, were wholly faithful to the vegetarian diet during the period while under observation, and twenty-four were recorded as fairly faithful.

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[6] Tr. First Internat. Cong. Dermatol. and Syph., Paris, 1889, p. 892.

In such a disease as psoriasis, and with private patients, who cannot always be controlled or seen as often or as long as desired, it is very difficult to make concise and correct statements in regard to the carrying out of any particular line of treatment, or the results therefrom. But Table 5 will give some idea of the length of time during which a vegetarian diet has been carried out, more or less strictly, by the patients whose cases are under consideration.

TABLE 5.—DURATION OF VEGETARIAN DIET

Patients	Number Male	 Female	 Total
Seen once	18	12	30
1 month or less.....	13	13	26
1 to 2 months......	5	5	10
2 to 4 months......	6	6	12
4 to 6 months......	..	5	5
6 months to 1 year..	11	10	21
1 to 2 years........	5	6	11
2 to 3 years........	3	3	6
3 to 4 years........	1	3	4
4 to 5 years........	1	1	2
5 to 10 years.......	2	5	7
10 to 20 years......	2	3	5
20 to 30 years......	1	..	1
	68	72	140

It is actually true that quite a number of these patients have continued a strictly vegetarian diet for months and even years, and I have frequently been told that they would not return to a mixed diet under any consideration. In some instances they have relaxed more or less, with perhaps but little ill effect on the condition of the skin, when all other elements of treatment were rightly carried out. But time and again patients who have relapsed into free meat-eating have returned with a fresh outburst of eruption, or great aggravation of any that had remained, and they intelligently recognized the cause, and have willingly taken up the vegetarian diet again, because of the great benefit which they had previously experienced from it.

The question arises as to the length of time it is necessary to continue the vegetarian diet. I am accustomed to tell my patients that this may be indefinitely; for if a faulty nitrogenous metabolism and excretion is at the bottom of the eruption, as it seems to be, this may recur whenever the intake of proteids exceeds the power of the system to handle them.

In some instances a return to a moderate mixed diet has not seemed to increase the tendency to the eruption, but in very many cases it has been recorded that any indulgence in a great amount of nitrogenous diet has caused a return of the skin lesions. So that we must infer that with a certain small proportion of human beings the organs are not able properly to assimilate much proteid substance.

It may be asked if the improvement observed to occur on a vegetarian diet bears any relation to the seasons of the year, as it is well known that psoriasis will often disappear at certain seasons. It may be answered that this is not the case. In the cases here analyzed the patients have been treated and watched throughout the year, and the improvement occurs shortly, irrespective of the season.

It may also be questioned as to whether the improvement observed was not due to some medication, internal or external. In reply I may say that this has been tested in a number of patients, over half a dozen, and these mostly inveterate cases, some of whom were very skeptic, owing to long years of unsuccessful treatment elsewhere. Explaining the matter fully, these patients have had absolutely no other treatment, internal or external, and have watched with great interest as certain lesions have ceased to scale, then faded, and finally disappeared entirely, leaving only a stain, which ultimately ceased to exist. This has been verified time and again by my associate, Dr. Bechet.

It is true, however, as remarked before, that there will sometimes be a recrudescence of the eruption to a greater or less extent, even while the patient is supposed to be under a rigid vegetarian diet; but I have never seen an outbreak nearly so severe or so persistent as previous ones; the lesions will be small and much less pronounced, and will commonly yield quite readily to appropriate treatment, dietary and medicinal.

This recurrence of eruption may be accounted for in several ways, and does not at all weaken the argument for a vegetarian diet in psoriasis. First, it is always possible that the patient may not have always adhered to the restricted diet as absolutely as reported. Second, the details of an exactly proper vegetarian diet have not yet been all worked out, and it is quite possible that some articles in the vegetable kingdom may lead to the faulty metabolism which is at the bottom of psoriasis. Third, there may be other causes also at work, as yet unrecognized, which favor the eruption. Fourth, there may be such a wrong action of some of the internal organs that even a purely vegetarian diet does not secure a perfect blood condition. (It will be seen from what has preceded that I regard psoriasis as a constitutional and not a purely local affection, although I recognize that the lesions on the skin may be due, in part, to the action of some of the microscopic organisms which abound on the surface, which operate when the soil has become suitable. It would lead too far from our subject to discuss the matter further, and to present the indubitable proof of this thesis.)

We may now very briefly consider the physio-pathologic basis for a vegetarian diet in psoriasis, and some of the principles underlying its successful treatment.

Perverted metabolism, and hence disordered nutrition, is the basis of much disease, whether it be caused by an erroneous intake of nutritive substances or the faulty disposition of them by the various organs of the system.

If we knew as much about the fluid composition of the blood as we do about its cellular elements, and should analyze it frequently, we could undoubtedly determine more about the true pathogeny of disease. But in the urine we have a most wonderful indicator of the blood-state, and if its oft-changing conditions are minutely studied often enough, and intelligently interpreted, we can know much more of the processes of metabolism than can be learned in any other way. Formed as it is directly from the arterial blood, after this has been prepared by the various organs and finally aërated by the lungs, and is on its way to nourish the tissues, the kidney secretion is to be studied in another light than simply as an excretory product. By the different proportions of its many ingredients it represents to us to a certain degree the composition of the blood itself as the kidneys have found it, and the result of their efforts to purify it.[7]

Time fails to permit entering at all largely into the interesting subject of the condition of the urine continually found in patients with psoriasis; suffice it to say that the average of a very large number of carefully made, volumetric analyses showed deviations from the normal which were of the utmost importance, all looking towards an imperfect metabolism of nitrogenous elements. The average specific gravity was 1.026, 1.030 to 1.040 being not uncommon, and the acidity was invariably high, often three or more times the normal, uric acid and urates abounding, and the urea increased even to double the normal amount.

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[7] Some Problems in Metabolism Occurring in Patients with Certain Diseases of the Skin, Jour. Cutan. Dis., April, 1911.

Acting on these indications we find psoriasis always benefited by alkaline diuretics, and a strict vegetarian diet, involving a restriction as to the intake of nitrogenous elements, shows alike in the urine, while it produces its beneficial effects on the skin. It is interesting to observe, however, that often for quite a period after entering on a vegetarian diet, the urine may still show evidence of excessive uric acid elimination, thus supporting the view which has sometimes been criticized, that there is at times a retention in the system of waste nitrogenous products which operate harmfully, and which the blood takes up much more readily, in proper combination, when relief is afforded by a non-nitrogenous diet. This is not the place to enter into a further consideration of the chemistry of the body, or to trace where the error of metabolism lies; but it certainly has to do with the functioning of many organs and parts of the system, and medical acumen and skill are required to discover and rectify the faulty actions involved.

Therefore, while a strictly vegetarian diet is strongly advocated in psoriasis, and while under certain conditions it is quite possible for the lesions to disappear under its influence alone, with no other treatment, internal or external, it is to be clearly understood that this is not the only element of treatment to be considered, although undoubtedly the most important one. To obtain the best results there is need of constant medical supervision in order to secure the best working of the economy in all directions, and proper internal and external medication can accomplish very much more in connection with an absolutely vegetarian diet than without it. It is, of course, impossible here to enter into any details regarding these matters.

A few words may be added in regard to the practical working out of the problem of vegetarian diet. When it is first explained that this diet means the absolute exclusion of all kinds of meat, poultry, fish, eggs, etc., and living only on the products of the ground, many patients hesitate and ask, "Well then, what can I eat?" So that it will often require some little patience and thought to aid them in securing a properly nourishing dietary; and it requires some watching to keep them strictly up to it. But with help they soon learn to manage successfully, and I have many who would not return to a mixed diet under any consideration. Many speak of their unusual well-being, and feel most grateful for the improvement in general health and vigor.

There are some articles from the vegetable kingdom, however, that have to be guarded against. Alcohol in any form, even the lightest beer, is prejudicial, and in some instances I have found better results when I excluded coffee, chocolate and cocoa, allowing only weak tea, and water in abundance. Butter is the only non-vegetarian substance which is allowed, unless it be possibly a little very fat bacon, occasionally. I do not allow milk to be used as a beverage, or on cereals, which should be eaten with butter and salt. Care must be taken against indulgence in sweets, and I commonly cut off pastry. Nuts, if well chewed, seem to act well, but much acid fruit seems sometimes to interfere with the treatment; vinegar on salad is harmless.

The question is asked about the ultimate results: "Is psoriasis curable with a perfectly carried out vegetarian diet, and proper other treatment?" This is a difficult question to answer very positively, because of the well-known character of the disease and the uncertainty of patients, as to their again consulting the same physician if there should be a relapse. But from my watching this treatment for more than twenty years, and from my more special study of the subject the last two years, I believe that a very considerable proportion of patients can be cured and remain well under a strict diet.

On study of the records of the cases here analyzed, there were eighty-one who were recorded as strictly faithful to diet, and twenty-four who were fairly faithful. There were thirty-two in whom the eruption was recorded as gone, and sixty in whom it was improved, and only sixteen in whom it was recorded as not improved, but of these, thirteen were not faithful to diet. Some of these patients have been seen later, for one reason and another, and remain free from eruption, but there are quite a number who return now and again, after a period of unfaithfulness to diet, with a greater or less amount of eruption.

Finally, it may be said without equivocation that the results of this plan of treatment, as watched by my several associates in years past and myself, and by physicians in consultation, and by very many most intelligent patients in private practice, far exceed anything which had been previously secured by the best of treatment at the hands often of the best men in the profession.

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ABSTRACT OF DISCUSSION

Dr. D. W. Montgomery, San Francisco: The etiology of psoriasis has always been a riddle to dermatologists, and no theory is satisfying and no line of treatment gives absolutely satisfactory results. Even if it be as Dr. Bulkley maintains, a nutritional disease, yet it certainly is not a disease of degeneration, as the people who have psoriasis are usually the strongest and healthiest of a community. It is rare to find a weakly, sickly individual with this disease. These people are strong and healthy, and have a beautiful white skin and muscles like iron. I knew a man in San Francisco who had psoriasis and whose eruption cleared up every time he went fishing. A ready explanation would be that his nutrition improved with the exercise and fresh air. I also remember that the late Dr. J. Nevins Hyde reported the case of a patient whose eruption cleared up on living naked in the strong sunlight of Arizona. This disappearance of the eruption under the influence of sunlight is interesting, because psoriasis rarely occurs on the exposed skin of the face and hands, and patches of psoriasis may be temporarily cleared up under *x*-rays. Whether light acts in psoriasis as light or as a nutritional agent is not known.

I have never tried Dr. Bulkley's diet, but I should think it a very difficult one to enforce. It is doubtful if a man could feel strong and well on an entirely nitrogen-free diet. It is my habit, however, to regulate the diet of these patients with the view that the eruption is connected with poisons of fermentation generated in the alimentary canal, but in regulating the diet I do not deny them meat.

Dr. Bulkley's observation in regard to the rarity of psoriasis in rice-eating countries is very interesting. I have long had my eye on rice as a most excellent starch. The Chinese have for ages lived, just on the edge of subsistence, with rice as their main food, and yet are a strong vital race. I do not think they could have done this on such a starch as potato. Martinet asserts that rice contains an antiseptic principle, and that under its influence indican disappears from the urine. There may be some connection between this antiseptic principle of rice, and the rarity of psoriasis among rice-eating peoples.

The darker races are very insusceptible to psoriasis. Psoriasis is almost never seen in the negro, although the negro is a heavy meat-eater. The freedom of the negro from psoriasis may be dependent on the peculiar insensitiveness of his skin to light. In fact, the freedom of all the heavily pigmented peoples may rather be due to their peculiar reaction to light than to their lack of carnivorous food.

DR. J. S. TREWHELLA, Los Angeles: I would say from personal experience that a restricted nitrogenous diet has been beneficial to me. I would prefer to have psoriasis and have meats than be restricted.

DR. LAWRENCE LITCHFIELD, Pittsburgh: Is it not possible that by adding purin-free articles to his nitrogenous diet, Dr. Bulkley might get good results? It may be that the purin metabolism is at fault.

DR. L. DUNCAN BULKLEY, New York: I have not followed out the point made by Dr. Litchfield, but will take it up and report perhaps next year. In regard to living on that diet and keeping healthy, I have kept patients for weeks on rice, bread, butter and water, with only good effects. Indican disappears from the urine under this diet. If you see the Japanese and Chinese at work you will see what wonders they can do on rice. I have had people suffering from psoriasis for ten or twenty years in whom the eruption has faded away under a vegetarian diet alone. To show how rare psoriasis is among the dark-skinned races, who live on cereals, my son, who is a medical missionary in Siam, sent me recently a photograph of about the first patient with psoriasis that he had seen in six years there.

A REPORT ON THE USE OF CACODYLATE OF SODIUM IN FOUR CASES OF PELLAGRA

J. O. ELROD, M.D.
FORSYTH, GA.

Because pellagra is a new disease in this section of the country, because the number of its victims is increasing rapidly, and because the treatment has been so varied with so small a percentage of success, I am making a report of four cases. So far as I can gather from journals, or any publication on this disease, the profession has not decided what the cause of pellagra is; almost every one suggests a different cause. As we all like to know the cause of any trouble before we begin our treatment, it seems to me that our greatest work is to find out the cause of this disease, but while we are doing this we must not sit still and do nothing for the patient.

CASE 1.—*History.*—Mrs. S., aged 23, white, whose husband was murdered in December, 1909, had two children, one born November, 1905, the other, December, 1907. She said that erythema of the hands, and spots on the dorsa of the feet had first appeared during the spring of 1905 and 1906; these attacks she thought were eczema, and they passed off after a few months with local treatment. Erythema did not reappear until the spring of 1909, when it appeared on the hands, feet and elbows; again it disappeared with local treatment. During these times the patient was in a very run-down state of health, but though hardly able to be up, continued to do her housework. During the spring of 1910, there was some appearance of the erythema, but not very much. During the first days of January, 1911, the patient became so debilitated that she was not able to be up, the eruption began to appear on her hands, feet, elbows and a few places on her face. At this time she called in a physician, and after several weeks of treatment she continued to grow worse. February 12, she and her mother, with whom she was living, requested the attending physician to call in another physician with him. This he refused to do and dismissed the case. February 13, I was called to see her, and on examination I found her with a circulation of 110, temperature 101 F., very weak, not able to turn herself in bed, and very nervous. I found an eruption extending from the tips of her fingers along the backs of the hands up the forearm to within three inches of elbow, also spots on the point of the elbow, on the neck, around the alæ of the nose, on the dorsa of the feet, on the knees, and for several inches around the anus. The character of the eruption was scaly, and pigmented around the edges; under these scales was a secretion of serum. All of the eruptions were very red and angry looking. The mucous membrane of the mouth showed a thick, and spongy appearance. The gums were thick and spongy, and would bleed from the least touch. The tongue was red and smooth, and had a velvety touch.

The patient had very little appetite, some nausea, vomiting, diarrhea, with from twenty to thirty bowel movements in twenty-four hours. The irritated condition of the mucous membrane of the mouth seemed to extend through the entire alimentary canal. She suffered with general muscular aching most of the time, slept well during most of the night, but very little during the day. The loss of flesh was very marked. The patient was extremely nervous, and at times had hallucinations and crying spells. For some time she suffered with diplopia; aside from this the eyes seemed to be all right. She had not menstruated for about twelve months.

Treatment.—On February 13, I gave the patient two ounces of castor oil, to clear out the alimentary tract; after this I gave her a combination of bismuth subnitrate and camphorated opium put up in lactated pepsin elixir, also a hypodermic injection of morphin sulphate, 1/4 grain several times each day. For the eruption I tried an ointment of phenol (carbolic acid) and zinc oxid. For the mouth I gave an alkaline mouth-wash; for the weakened condition and rapid heart I gave strychnin nitrate, 1/30 grain, every four hours; all of these things I did up to February 24, and none of them seemed to do any good, as the patient gradually grew worse. On the above date, Dr. G. L. Alexander saw her with me and suggested that I give her cacodylate of sodium as an experiment, as it could do her no harm, and she did not look as if she could live but a few days. I gave her a hypodermic injection on that day, of 3 gr. of the sterilized solution of cacodylate of sodium. On the following day, the patient appeared to be very much worse, having all kinds of hallucinations, and talking incessantly for several hours. At this time her pulse was very weak and rapid, and she looked as if every moment would be her last. I gave her at this time a hypodermic injection of digitalin, nitroglycerin and strychnin, and kept her as quiet as I could with an occasional dose of morphin. February 26, she was very much improved. On account of her weakened heart action from the depression of the day before, I continued the digitalin, nitroglycerin and strychnin, giving it every four hours. I kept up the alkaline mouth-wash that I had given her in the beginning, and began using carron oil to soften the scaly eruption on different parts of the body. I continued the cacodylate of sodium injections, giving them every three days. After I had given her ten injections, the eruption had all disappeared and the parts showed only the appearance of new skin. The tongue had lost some of this redness, and the mucous membranes of the mouth had improved a great deal. The bowels began to check up after the third injection, and after the fifth, they did not move more than twice a day. The appetite began improving after the first injection, and temperature and pulse gradually went back to normal. As her appetite improved, the patient began gaining strength and flesh, and by March 1, she was beginning to sit up, and since that time she has menstruated. At the present writing, I give her the injection of sodium only once a week. This patient thinks she is cured, since she has no apparent symptoms, is able to visit her neighbors and to do most of her housework.

CASE 2.—*History.*—Mrs. D., aged 22, has no children. For the past two years she has experienced a general physical decline. She has been consulting me during this time, and I could never find anything organically wrong with her, though she continued to lose weight and strength. During the past spring I began to notice that her tongue was spongy, red and very smooth, and would bleed from very little irritation. I did not see her very often, and May 16 she came to me complaining that her hands had been blistered by the sun. On questioning her, I found that she had considerable irritation of the feet. On examination I found the back of her hands and several inches of the forearm in a blistered condition, as if done by the sun. The edges of the blistered parts were very brown. From the above symptoms I made a diagnosis of pellagra, and began giving her every three days hypodermic injections of 3 gr. of the sterilized solution of cacodylate of sodium. The last injection I gave her was on June 8, at which time her condition was very much improved, and she had gained her strength so rapidly that she told me that she was well and did not believe she needed any more medicine, claiming that she felt better than she had felt in two years. All of her symptoms have entirely disappeared, and apparently she is well.

Case 3.—*History.*—Mrs. R., aged 33, has had five children, the youngest of whom is two years old. While under my charge the past two years, she gradually lost flesh and strength, and I could find nothing organically wrong with her. I gave her tonics, digestants and everything I knew that might apply to the case, and failed to help her.

May 25 she called me in to see her; at this time I had not seen her for some weeks. She showed me a scaly eruption, which was all over her face and hands, and which did not look like any I had ever seen in cases of pellagra. Her tongue was red, and velvety to the touch; the gums were red and spongy and would bleed from very little irritation; the temperature and circulation were normal, the bowels were constipated, the feet burned and ached all the time. As the eruption in this case was different from any I had seen, I guardedly made my diagnosis pellagra, and began giving an injection of cacodylate of sodium every three days, also 2-dram doses, three times a day of elixir of iron, quinin and strychnin (U. S. P.). For her constipation I am giving her 1-dram doses of arom. fluidextract of cascara sagrada once a day. The patient has improved gradually since the beginning of the above treatment and the eruption has entirely disappeared.

Case 4.—*History.*—Mr. W., aged 49, farmer, past history negative. May 27, he came to me with back of hands and forearm half way to elbows looking as if they had been blistered by the sun, and told me he had burned his hands.

I had not seen this man for some time and I was very much surprised on weighing him to find that he had lost 32 pounds in the past six months. He told me he was troubled with indigestion and constipation all the time, that he had no appetite, and that he had lost his strength until he was hardly able to work. I found his mouth and tongue in the same condition as reported in the other cases. I began giving him a hypodermic injection of 3 gr. of the sterilized solution of cacodylate of sodium every three days, and in two weeks he had gained one pound, with no other treatment except the sodium.

REMARKS

Since we know very little as to the cause of this disease, I shall give some details as to the origin of these cases.

The patient mentioned in Case 1 lived nine miles from Forsyth during the first four years she had her first symptoms of the disease. Just one quarter of a mile from her home lived a man, 73 years of age, a patient of mine, who died of pellagra two years ago. This man was the father of Patient 4; before the father's death, the two lived in the house together. For the past year Patient 4 has lived in the house where Patient 1 had lived for four years. Near this house there is a small stream of water and a great deal of marshy land.

The mother-in-law of Patient 2 died of pellagra in November, 1906. I did not recognize it as pellagra at that time, but since knowing something of the disease, I realize that is what she died of. Patient 2 did not live near her mother-in-law at the time of the latter's death, but for the past three years she has lived within three hundred yards of the house in which her mother-in-law died, and has been on the decline all the time. Near this place is a stream of water with marshes around it.

The patient mentioned in Case 3 lives within one-eighth of a mile of a running stream of water; there are not very many marshes adjoining this stream.

Since reading an article by Dr. A. Cacini of New York,[1] also an abstract of an article of Dr. L. W. Sambon,[2] I have recalled that all of the patients afflicted with pellagra that I have ever seen have lived near a stream of water, and in the rural district! For these reasons I am beginning to believe the theory of these writers as to the cause of pellagra. From the cases I have seen, I believe it to be an insect-borne disease; I do not believe that the corn-bread theory is worth anything, since a good percentage of these patients have never eaten corn-bread. Patients 1 and 4 in this report have never eaten corn-bread to any extent. I believe that Patient 1 had the typhoid pellagra of which Dr. Cacini speaks. I also believe that her recovery would have been more rapid had I given her the injections of sodium more frequently.

THE PATHOLOGY OF JOINT TUBERCULOSIS*

LEONARD W. ELY, M.D.
DENVER

It may seem somewhat bold for an orthopedic surgeon to address the members of an august body like this on a matter pertaining to their own specialty, and were there anything like a unanimity among you, I should hesitate.

That the greatest confusion exists as to the pathology of joint tuberculosis, one can easily find by consulting a few text-books and by reading a few articles on the subject. This confusion, of course, is reflected in all the aspects of the disease, and until the exact pathology is laid down in full and comprehensive terms, it is futile to look for any scientific treatment of the disease. In other words, although the cause of the disease has been known for many years, the failure of the pathologist to place the pathology on a sound footing, is responsible for the chaos in the whole subject of joint tuberculosis.

In self-defense, then, I entered on this work, to see what I could find out for myself, and I shall here attempt to set forth as briefly as possible some of my findings. My material consists of about eighty specimens, supplied by various men. Most of the specimens consist of resected joints, some of amputated extremities, and a few of clippings from joints that had been opened for one purpose or another.

The first question to be discussed is, where joint tuberculosis starts and what tissues it affects. It starts in the marrow of the spongy bone ends or in the cellular synovia, and as long as it remains uncomplicated, it is confined to one of these two tissues or to them both. The bone itself, the cartilage and the ligament are damaged simply by interference with their nutrition, and may be said to play a purely passive part in the disease. The tendency in recent years in America has been to regard all joint tuberculosis as of bony origin, and the theory has the attraction of simplicity, but, starting out myself with this view, I have been compelled to abandon it.

A study of our specimens and of the histories of the patients from whom they were taken convinces me that primary synovial disease not only occurs but is quite frequent in adults. In children, disease of the bone-marrow predominates. The reason for this we shall presently see. Synovial tissue is distinctly vulnerable to tuberculosis. It is classed among structures of the lymphatic system. We find the disease rather frequently in tendon sheaths.

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[1] Cacini, A.: Med. Rec., New York, March 11, 1911.

[2] Sambon, L. W.: The Journal A. M. A., July 23, 1910.

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

The next point is, why tuberculosis occurs in the extremities of the long bones and not in the shafts. As you know, various explanations have been advanced for this phenomenon, but as you also know, none of them has ever been accepted as adequate. Liability to injury has been said to be responsible, but trauma is no cause of tuberculosis, and if we injured a muscle or a ligament, or if we fractured a bone, we should not expect tuberculosis to ensue, and we must not forget that the tissues of a joint are adapted generally to the traumata to which they are exposed. Some say that the vulnerability is due to the arrangement of the blood-vessels, to the lack of anastomosis in the end arteries of the epiphyses in childhood, but the anastomosis is present in adults, and the lack of anastomosis in the blood-vessels of the brain, for instance, does not predispose to cerebral tuberculosis. To congestion has been ascribed a causal rôle, but congestion has been advanced as a means of curing the disease.

About a year ago, I proposed an explanation which appeared to me quite adequate, and I see no reason as yet to change my opinion. Bone tuberculosis is simply a question of red or lymphoid marrow. Wherever in bone we find lymphoid marrow, there we find the bone vulnerable to tuberculosis, and where we do not find it, there we do not find unmixed tuberculosis. This might be regarded as a coincidence, but the argument is reinforced by the fact that after a resection of a joint, the knee for instance, if bony union and primary healing be attained, the structure of the bone at that site changes from spongy to dense, and the disease disappears, whether or not we have removed all the infected tissue. There is no difference between dense and spongy bone except the arrangement of the lamellæ, the amount of bone, and the quality of the marrow, and we have already seen that the bone itself is never affected.

In the spongy bone we find the red or cellular, or lymphoid marrow, and where we find lymphoid tissue there tuberculosis can get a foothold. There is more red marrow in the bones of children than in those of adults. Hence, bone tuberculosis is more frequent in the former than in the latter. Primary tuberculosis of the shafts of the long bones has been described, but almost always, or invariably, of the shafts of children's bones alone, and red marrow exists in them. Joint tuberculosis is rare in children under 1 year of age. Their bone ends are composed almost exclusively of cartilage, and Rovsing has said that the joint tuberculosis of infants was probably always purely synovial. The yellow marrow appears to be invulnerable, but if a secondary infection be added then the disease may spread here also, as well as to other tissues also previously immune.

When we find a tissue subject to tuberculosis in a certain region and find further that when this tissue disappears, the disease dies out, we are certainly justified in regarding these facts as having some sort of a causal relation to the disease.

König has attached great importance to the precipitation of fibrin from the exudate in the joint. By means of this fibrin he has asserted that the cartilage is eroded and destroyed from the joint side, and that the synovia is infected from the exudate. In fact, he seems to assign to the exudate a very important part in the spread of the disease. I am forced to the conclusion that his examination of joints must have been almost exclusively macroscopic. I assign to the exudate a minor rôle and regard it more or less as a mere symptom, and quite unimportant in the pathology. I think the synovia is invaded by the primary tubercle in its substance, or else by a spread of the disease from the bone, where the synovia is attached at the margin of the cartilage.

The "layers of fibrin" which König describes on the cartilage, I think, are simply the evidence of the fibrillation of the superficial layers of the cartilage, caused by the interference with its nutrition and by the immobilization of the joint. The fibrillation can be plainly seen in sections. The cartilage may be perfectly smooth in joints which have been for years the seat of a tuberculous exudate. I have the joints to prove this. On the other hand, the fibrillation (or "layers of fibrin") may not be in evidence in a cartilage that has been lifted off the subjacent bone. If this bone is in good condition, that is, if the nutrition of the cartilage has not been involved, the cartilage will usually be found in pretty good condition. I believe that it is never damaged except from below.

The subject of rice bodies has also attracted some attention. Two theories have been held in regard to them: that they were the result of the precipitation of fibrin, or of a degenerative process. I consider them as the product of an effective attempt at repair, as the walling off of the tuberculous granulations and subsequent condensation and shrinking. One of our specimens (a knee-joint) contained a collection of them in a fibrous capsule. I think that the slide of this specimen is unique. The joint also contained a small encapsulated hematoma. Both are rare—one may be the later stage of the other.

PYOGENIC MEMBRANES

In almost all text-books tuberculous abscesses and sinuses are described as being lined by a pyogenic membrane; that is, by a wall of granulation tissue, filled with tubercles. The walls of these abscesses or sinuses, *if they are not infected secondarily with pus germs*, are composed of the necrotic tissue of the structures in which they lie. If the tissue is vulnerable to pure tuberculosis, then tubercles may be found in the walls of the abscesses or sinuses, otherwise they will not be found there. In a cross-section of the walls of a secondarily infected tuberculous sinus, tubercles will be seen, in one not secondarily infected they will not be seen. The importance of this fact to the subject of treatment is at once obvious.

What is the result of an old healed tuberculosis of a joint or of a tuberculosis thought to be healed? One hears the term "ankylosis" used somewhat at random, and more or less vaguely. In children, one may occasionally get a bony ankylosis, but only after a secondary infection. In not one of our specimens of adult tubercul joints was a bony ankylosis present. I believe th never occurs except after a resection.

As to healing, what may one expect? In a child, thing from good function and a practically c cure, up to a bony ankylosis. In an adult, I beli that if the bone be involved, painless and useful function in that joint is at an end forever, and permanent healing under conservative treatment is very doubtful. In one of our resected adult knees, we found an old healed tubercle in the bone, just beneath the cartilage, buttressed off with fibrous tissue and bony trabeculæ, and yet, the disease must have broken out afresh or the joint would not have been excised. In another case, ankle, we found an old tubercle buried in fibrous sions. In some of our cases, the history runs back for years.

Finally, let me mention the unreliability of the examination of a clipping from a joint for diagnosis. Tuberculosis *may exist in one part of the synovia and not in* another. The reports of different laboratories from sections of the one joint will often differ. If tuberculous tissue be found, the report, of course, is final; if not, the joint may still be tuberculous.

Thorough mastery of the pathology of joint tuberculosis by the profession would soon put an end to the diverse, and sometimes fantastic, treatment of the disease, which now prevails.

440 Humboldt Street.

TONSIL INSTRUMENTS

RICHARD J. TIVNEN, M.D.
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TONSIL HEMOSTAT

During a tonsil operation, it frequently occurs that after one tonsil has been removed a considerable period of waiting is necessary to control the resulting hemorrhage before the operator obtains a clear operative field and may, *without annoyance from the hemorrhage,* proceed to the removal of the remaining tonsil. In such cases my tonsil hemostat (Fig. 1) has proved efficient.

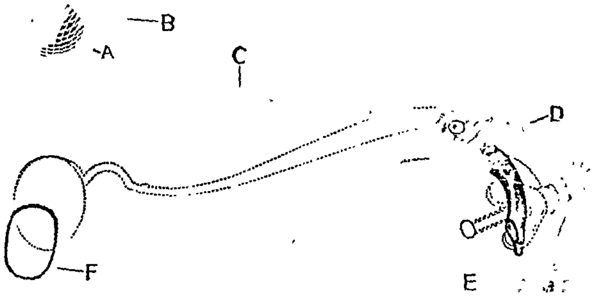

Fig. 1.—Tivnen's tonsil hemostat. A, serrated aluminum tonsil pressure bulb, oval in form to conform to tonsillar fossa. B, curve, which overrides the anterior pillar. C, arm, curved to rest, external to the teeth, between the alveolar process and the cheek. D, portion projecting from mouth. E, thumb-screw and swinging arm lock for securing instrument when closed and applied. F, the external fenestrated counter-pressure plate. The unbroken heavy lines indicate instrument when open. The dotted lines indicate its appearance when closed.

It arrests the hemorrhage promptly, eliminates the delay usually incident to its control, secures a clear operative field and thereby shortens the period of anesthesia, the time of operation and minimizes greatly the danger of subsequent hemorrhage. The special *application of this hemostat is for the control of hemorrhage during* the operation. It may be used, however, equally well for postoperative tonsillar hemorrhage.

Its application is expeditious and simple; it can be used for either tonsil without change or adjustment and being constructed entirely of metal, may be boiled without injury.

The clamping arms of the instrument are thin, light in weight, and, *when in position,* the inner arm and pressure bulb adapt themselves snugly to the tonsillar fossa and anterior pillar; beyond the pillar, the arm is so curved as to rest between the alveolar process and the cheek; while the portion of arm and lock protruding from the mouth is short, curved abruptly to the outer side, and entirely out of the way of the operator.

The field of operation is not in the least obstructed by its use and neither the subsequent introduction and manipulation of the necessary instruments for the removal of the remaining tonsil nor the technic of the operator need be curtailed, modified or embarrassed by its presence.

In using the instrument, I have found it of advantage to cover the oval bulb with three or four layers of sterile gauze, the ends of which are first trimmed short so they will not project into the operative field, then gathered together and secured just over the base of the bulb by an ordinary rubber band, previously sterilized. This covering is moistened with a 1-to-1,000 solution of epinephrin (adrenalin chlorid).

A pad of gauze is also placed just behind the angle of the jaw to protect it from the slight amount of pressure exerted at this point by the external counter device of the instrument.

The advantages of the instrument summarized are:

1. It arrests tonsillar hemorrhage promptly and is available for either operative or postoperative hemorrhage.

2. It can be quickly applied to either tonsil, without change or adjustment, and when in use does not in the least obstruct the operative field.

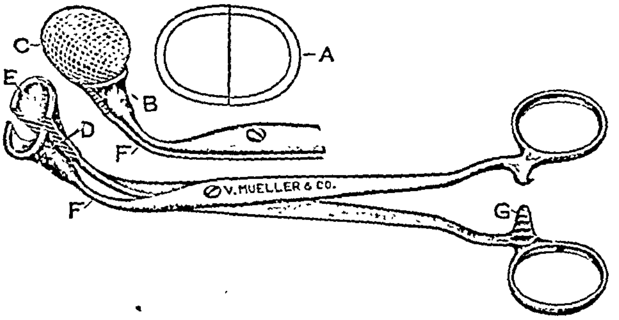

Fig. 2.—Tivnen's tonsil sponge forceps. A, outline of sponge-cup. B, base of sponge-cup. C, sponge in position. D, instrument opened to show serrated portion at inner side of cup base for retaining ends of sponge. E, receptacle for sponge. F, showing angle of sponge-cup to the handle. G, lock.

3. It is simple in construction, light in weight and being entirely of metal may be sterilized by boiling without injury.

4. The amount of pressure necessary to exert in controlling the hemorrhage is slight and when the pressure applied is judiciously *graduated and not unnecessarily* prolonged, the tissues are not traumatized and the patient is not subjected to additional hazard by its use.

5. By securing a clear operative field, it conduces materially to the carrying out of a satisfactory technic and surgical thoroughness, shortens the anesthesia and operative period, eliminates the hazard and annoyance of operative hemorrhage and minimizes the danger of subsequent hemorrhage.

TONSIL SPONGE FORCEPS

A satisfactory tonsil sponge forceps should be light in weight, simple in design, easily operated, carry securely a sponge of sufficient size and form to serve its purpose adequately and so constructed as to adapt itself readily to the oral cavity and tonsillar region.

My tonsil sponge forceps (Fig. 2) was designed to meet these requirements.

The instrument is provided with a lock to hold the sponge securely; the sponge receptacle is cup-shaped, oval in form to correspond to the general contour of the tonsil and tonsillar fossa; the "cup" in which the sponge rests is sufficiently large to accommodate a sponge of proper size; the edge or "flange" of the cup is overlapped by the sponge, thus presenting a smooth, cushioned surface, which minimizes the trauma to the tissues to which it is applied and in addition provides an even, firm resistance of a solid oval sponge-body, which exerts firm and evenly distributed pressure throughout every area with which is comes in contact.

The two halves of the sponge cup are serrated at their base to engage firmly the base of the sponge, which is inserted between them; the cup itself is placed at a slight angle to the carrying arm of the instrument to permit the operator an unobstructed view of the tonsillar area when applied and to promote facility of application to the depths of the tonsillar fossa. The sponges for the instrument are prepared by taking a small square of gauze, filling with cotton to the required size, and then gathering the ends of the gauze together over the cotton filling—much as a pouch is made.

The gathered ends of the gauze are twisted together and are then easily inserted between the open halves of the cup, which is closed and locked. Before operation, a sufficient number of such sponges are thus prepared and sterilized. From four to six sponge forceps should be at hand for the operation and during the operation the assistant is entrusted with the arming and disarming of the instrument.

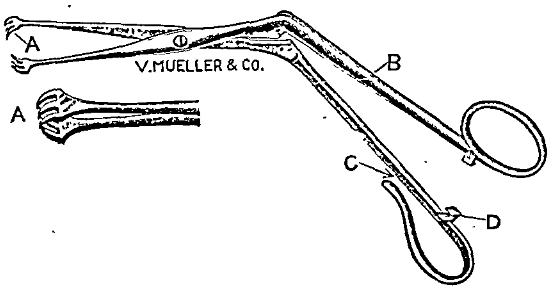

Fig. 3.—Tivnen's tonsil-grasping forceps. A, tonsil grasping portion. B, showing angle of handle to grasping arm. C, opening in finger ring for introduction of snare. D, lock.

ADENOID HEMOSTAT

The amount of blood lost in the removal of adenoids is usually considerable.

While the hemorrhage is not ordinarily considered of serious moment, occasionally, however, it is accompanied or followed by serious consequences to the patient. It is therefore the manifest duty of the operator to safeguard his patient in every possible way and to eliminate every factor which may endanger the patient's life or prolong his period of invalidism.

Viewed from this standpoint, the control of hemorrhage incident to the adenoid operation becomes a matter of importance and merits thoughtful consideration.

My adenoid hemostat is designed for the control of hemorrhage during or following adenoid operation.

In design and construction, this instrument differs in only one essential particular from the tonsil sponge forceps above described. In the adenoid hemostat, the sponge-cup is placed at nearly right angles to the carrying arm in order to accommodate itself easily to the nasopharynx, the angle of the sponge-cup to the handle, marked F in Figure 2, approaching more nearly a right angle in the adenoid hemostat.

The sponge used is previously prepared and its size is regulated from an estimate of the size of the patient's nasopharyngeal space.

After removal of the adenoid, the sponge is moistened in epinephrin (adrenalin chlorid) solution (1 to 1,000) and is quickly but gently applied to the nasopharynx, being introduced in the same manner as the adenoid curet. It is then pressed firmly against the vault of the pharynx and retained in this position until the hemorrhage has ceased, and is then slowly and gently withdrawn.

TONSIL-GRASPING FORCEPS

The advantages of this instrument (Fig. 3) are:

1. It is thin, light in weight and delicate in construction, thus permitting facility of operation and an unobstructed view of the tonsil and tonsil area.

2. The grasping portion is curved to adapt itself to the tonsil contour; the teeth, three in number, are edged, curved, spaced and approximate snugly to engage the tonsil easily and securely. This arrangement is of especial advantage in dealing with the so-called "submerged" variety of tonsil.

3. The handle of the instrument, being nearly at right angles to the grasping portion, the hand of the operator is situated out of the line of vision and thus presents an unobstructed view of the field of operation at all times.

4. When the tonsil is once engaged the instrument is locked, and the tonsil remains secured until removed.

5. The snare is applied without releasing the tonsil, by entering the loop at the opening in the finger ring, sliding it over the instrument down to and over the tonsil.

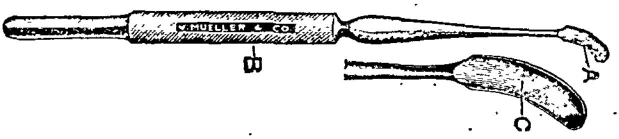

Fig. 4.—Tivnen's tonsil pillar separator. A, cutting edge of blade. B, handle. C, showing oval form of blade from side to side.

TONSIL PILLAR SEPARATOR

The advantages of this instrument (Fig. 4) are:

1. It is of sufficient weight to impart a comfortable sense of resistance and balance to the operator's hand.

2. The length of the handle enables the operator to perform the necessary manipulation without obstructing the view.

3. The handle is round to permit rotation of the instrument and is serrated throughout so that it may be held firmly and securely.

4. The blade is placed almost at right angles to the handle; it is slightly oval from side to side to conform to the tonsil contour and is thinned and rounded at the point; and the cutting edge may be made sharp or dull.

32 North State Street.

THE INFLUENCE OF THE THYROID AND PARATHYROID GLANDS ON THE HEALING OF FRACTURES *

R. L. THOMPSON, M.D., and J. L. SWARTS, M.D.
ST. LOUIS

Since skeletal disturbances are so striking a feature in athyreosis, it is easy to conceive that a fractured bone in an animal deprived of thyroid gland would suffer delay in healing. That this is true seemed to be proved by Steinlen in 1900, who, using young rabbits, observed a definite delay in the time of fracture healing in animal operated on. The same was explained as a result of the delay in callus formation and lack of calcium deposit, so that there was a persistence of uncalcified cartilage beyond the period when normal animals showed unmovable solid bone.

While the results of Steinlen seemed conclusive, they were attacked by Pezzolini (1903) who asserted that it was not the thyroid removal, but the general cachexia of the animal that retarded healing and regeneration.

Still more recently (1909) Canal, and also Morel, basing their assumptions on the theory of the relation of the parathyroid glands to calcium metabolism, found that fractures healed more slowly after complete parathyroid removal than in control animals. Jovane and Vaglio, however, dispute their results.

In our experiments we have attempted to observe the results of both thyroid and parathyroid removal on the time of fracture healing as well as a few attempts at the production of thyroid hypertrophy during the course of fracture healing. This work we consider incomplete, for, although over fifty dogs were used, so many factors enter into the cause of delay in fracture healing that much more work must be done before any definite conclusion can be drawn. Among the points to be considered are age, size and individual susceptibility in the different animals. Considerable variation (even to absolute lack of union) can be obtained by variations of the technic with which fractures are performed. It is needless to say, also, that slight inexactness in the apposition of the fractured fragments may give considerable differences in the size of the callus, and that the animal must be carefully watched throughout the whole course of the recovery to prevent injuries that might retard healing.

Aside from all this, the greatest difficulty which we encountered in this work was the complete removal of all thyroid tissue. Anyone who has worked with dogs knows how infrequently myxedema symptoms occur in these animals, even when all visible thyroid tissue is removed. We were able to account for this by the finding of pericardial thyroid tissue in 80 per cent. of our animals, as we have described elsewhere.

Taking all these varying factors into account, then, we give the following results of our work. The malar bone was selected in most instances for fracture. In some cases the femur was fractured. Most of the experiments were following complete thyroidectomy. One series was following mass ligation of the parathyroid glandules, since it has been shown that these organs may be gradually destroyed in this way without the sudden tetanic death which follows complete parathyroidectomy.

After the removal of all visible thyroid tissue and the attempt to leave behind at least two parathyroid glandules to prevent tetany, the animal was left for from two to eight months and watched for the development of signs of myxedema. Out of twenty-one animals thus operated on, only two developed distinct myxedema, as was shown by the increase in size, the thickening of the skin and subcutaneous tissue, and the falling out of hair. (Several animals in this series died from sepsis and tetania parathyropriva.)

By experiments on control animals, it was found that healing of the malar bone, when chiseled through and the fragments carefully approximated and covered with periosteum, showed practically complete healing in about forty days. While a number of animals were examined at shorter and longer intervals, it was decided to use the myxedematous animals for study of the bone thirty days after the fracture. Several of the thyroidectomized animals not showing myxedema were also examined thirty days after fracture, and normal animals with thirty-day-fractured malar also were used for control.

While differences were found in the amount of union that had taken place, these differences were greatest between different animals in the control series and not between the control animals and the thyroidectomized animals. For instance, there were two cases of lack of union and both were in control animals. In general, in the control animals and in the thyroidectomized animals, both with and without myxedema, practically identical pictures were obtained.

Macroscopically, the fractures were well united with little or no visible callus. When the bone was removed, fibrous union could be seen, and the section showed fibrous tissue between the bone fragments.

Microscopically, considerable difference is to be noted in individual animals in the amount of connective tissue between the bone fragments. This may vary from a hardly discernible line to the width of two-thirds of a low-power microscopic field. When the bone is fixed in Zenker's fluid and stained with Mallory's anilin-blue connective tissue stain, the calcium content of the bone usually takes a distinct brown (or brownish yellow) color. With this stain, no lack of ossification is to be observed in the thyroidectomized animals that is not shown in the control animals.

Following the negative results obtained in this series of experiments, a method was sought whereby the influence of the parathyroid glandules on the healing of fractures might, in some measure, be ascertained. Canal states:

> In my experiments on animals completely parathyroidectomized, I have observed that there is a delay in the healing of the fracture when compared with the animal of control under the identical condition of feeding and living. However, in experiments on animals partly parathyroidectomized, I have found that there is not the least delay in the healing.

While we do not know how Canal's results were obtained, one of us has shown in a previous article that dogs may be kept alive for some time even after complete destruction of the parathyroids if this is brought about by gradual destruction of the glands by mass ligation. The animal finally dies, but from cachexia instead of tetany, sometimes remaining in a state of torpor for several weeks.

Our experiments were carried out on only six animals in this series. The femur was the bone selected for fracture. Control animals show complete repair in one month after fracture of this bone. No comparative results that we care to record were obtained with the animals operated on. The extreme cachexia which these animals suffer, when successful operative results are obtained, makes comparison with normal animals impossible.

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* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

* From the Department of Pathology, St. Louis University School of Medicine.

In conclusion, we find that, in the limited amount of material which we have studied, the lack of thyroid tissue has no influence on the healing of fractures of the malar bone of the dog. We see at present no exact method of studying the results of complete parathyroid removal on the healing of fractures.

A TUBULAR SOFT RUBBER NASAL SPLINT THROUGH WHICH THE PATIENT CAN BREATHE [*]

MARK D. STEVENSON, M.D.
AKRON, OHIO

The nasal cavity is narrow, quite long anteroposteriorly and varies in height. Each cavity has two openings, one in front and one behind, of about the same size and nearly on the same plane. To prevent escape of blood from either side of the nose and thus to stop a nasal hemorrhage, it is only necessary to obstruct the two nasal outlets. This can be accomplished by various means, several of which I described in a former paper.[1] The 3-inch-long and ½-inch-wide solid cotton tampons therein described, which swell on absorption of moisture, effectually prevent hemorrhage and are sufficiently flexible to adjust themselves to the more or less tortuous nasal cavity, but nasal breathing and drainage are entirely prevented.

The hard rubber and metal nasal splints now on the market are open to the following objections:

1. They are not flexible and unduly press against certain parts of the nasal structures.
2. Their ends vary too much in size. The smaller end permits so little drainage that the secretions dry and form crusts before being discharged from the large outer end.
3. The smaller end is usually too nearly circular in shape, the nasal cavity is narrow but not vertically shallow.
4. A short splint or tampon tends to slip out of the anterior naris. The posterior end, usually near the part operated on, is pressed upward and outward by the congested tissues until the splint or tampon readily slips downward out of the nostril. This defeats the purpose of the splint, requires the surgeon's attention, or its replacement may be effected by dirty fingers with consequent danger of infection.
5. Only the anterior naris and the front part of the nose can be influenced by these short splints.

The splint or tampon which I am presenting to the Section has the following advantages:

1. It is sufficiently strong but soft and flexible, adjusting itself to any curves in the septum or outer wall of the nasal spaces, therefore causing no pressure necrosis and little or no distress.
2. It is of uniform size throughout, corresponding to the more or less uniform width of the nasal fossa and size of the anterior and posterior openings.
3. It may be cut any desired length. When used to prevent nasal hemorrhage it should be about 3 inches long, blocking both anterior and posterior nasal openings. When the tissues swell after the effects of the astringents used have disappeared, pressure is made against the splint, effectually retaining a clot within the nose.
4. Openings may be readily punched or cut with scissors in any part of the tampon to promote drainage or aeration. The remainder of the surface remains smooth, making removal painless.
5. When sufficiently long, 2½ or 3 inches, there is no tendency for the splint to escape from the nose. The pharyngeal constrictors push it forward sufficiently in the act of swallowing so that it does not press against the Eustachian tubes from which it is held medianward by the projecting turbinate. Its posterior end cannot tip upward sufficiently to permit the splint to slip from the nostril.
6. The anterior end of the splint can be cut at an angle to correspond to the opening of the nostril.
7. The splint may be used readily in the inferior part of the nasal cavity. When the upper part of the nose requires drainage or blocking, depending on whether there are openings or not in the sides of the splint, it may be cut a little shorter and the posterior end placed upward against or near the sphenoid or under the middle turbinate.
8. It is impossible, for lack of space, to place the metal or hard rubber splints far enough forward in the anterior part of the nasal space to support the nasal bones in case of fracture. These soft rubber splints can be placed well forward on either side or on both sides of the septum so as to support the nasal bones and septum. They can be prevented from slipping out of the nostril by adhesive strips from the cheeks across the nostrils.
9. These splints are useful to hold the septum in any fixed position after septal operations. If the septum tends to press to one side a splint on that side only will support it until fixed; in some cases a splint may be placed on each side of the septum.
10. With proper care, antiseptic or alkaline washes may be gently poured from an irrigator or fountain syringe through this splint cleaning it and the nasal fossa.
11. Very little distress is caused while introducing or removing the splint.
12. Air can readily pass through it, making the patient more comfortable.

The tampons or splints may be obtained in various widths and thicknesses and can be kept sterile, ready for use, in a weak dilution of liquor formaldehydi. Before they are introduced, a mildly antiseptic ointment, e. g., zinc oxid or 2 per cent. calomel ointment should be wiped over the outer surface of the splint. It may usually be removed within twenty-four or forty-eight hours, but if its use is required for a longer time its reinsertion is easy and painless. Ordinarily in inserting such a splint it should first be directed upward and backward until well within the nostril, then it should be gently pushed straight backward along the floor of the nose. If a long splint is pushed upward instead of directly backward it will come in contact with the middle turbinate or sphenoid causing distress instead of painlessly entering the posterior choana. The splint may be readily introduced by means of an alligator forceps passed nearly through it. The jaws of the forceps should be opened widely near the distal end of the splint to hold it from slipping farther on the forceps. If any part of the septum requires temporary support, which the first splint does not afford, a second short splint may be placed above the other or gauze packing may be inserted above any part of the splint. Clean air is the most healing balm to the inflamed or injured nasal mucous membrane and any solid substance in the nose acts more or less like a foreign body. Occasionally in nasal surgery, however, mechanical means to aerate, drain or hold certain parts in position are useful if not absolutely necessary.

165 East Market Street.

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[*] Read in the Section on Laryngology, Otology and Rhinology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

[1] Stevenson, Mark D.: A Modified Simpson's Tampon to Prevent Nasal Hemorrhage, The Journal A. M. A., June 4, 1910, p. 1864.

LYMPHANGIOMATA OF THE OMENTUM AND OMENTAL CYSTS *

STANLEY STILLMAN, M.D.
SAN FRANCISCO

The two cases that form the basis of this paper are of interest, not so much on account of their rarity as for the corroboratory evidence they furnish of the correctness of the theory of Jacobi, that true serous cysts of the omentum all have their origin in the lymph-vessels of the omentum. The reported cases of lymphangiomata of the omentum are limited to very few. Only two have been actually reported as such—one by Dewitzsky and Morosow in 1895, who reported a case of "pouch-shaped lymphangioma of the great omentum," the other by Wakefield of San Francisco in a paper read before the American Gynecological Society on May 7, 1907. In 1903, Schramm reported a case in a female infant 1 year old which he characterized as "cystic degeneration of the omentum." Besides my own case, the only other is reported by Reginald H. Fitz of Boston in the course of the Lane lectures in San Francisco in 1910. It was a case of enormously dilated lymphatics of the omentum, occurring in a woman who also had a fibroid of the uterus to which the omentum was attached. It had been noticed first three years previously and since, had slowly increased in size. The omentum was reduced to a web of connective tissue supporting the tremendously dilated lymphatics. The case was one of Dr. G. W. Brewster's of Boston, and the patient was operated on in the Massachusetts General Hospital in 1910.

My own patient was operated on September 1 of the same year; the case was almost identical with that of Dr. Brewster.

The patient was a woman of 42, married, with one child. She came to me on account of an abdominal tumor, which she had discovered herself four or five years previously, and which had steadily increased in size. Within the last few months, she had suffered considerably from pain and dragging, more referred to the epigastrium than to the pelvis. Examination disclosed a tumor the size of one's head attached to the uterus but quite freely movable. Diagnosis was made of pedunculated myofibroma of the uterus. During operation, it was found that the pedunculated fibroid was also attached to the lower border of the great omentum by a pedicle, as thick as one's thumb, and containing many large blood-vessels. When the omentum was pulled down, it was found to contain between its peritoneal surfaces numerous elongated, tortuous, exceedingly thin-walled cysts, which were in many cases from 1½ to 2 inches in diameter toward the free border of the omentum, and some tapered off almost to a point as they approached the lower border of the transverse colon. They were distributed throughout the omentum and varied in size and length. The gastrocolic omentum was similarly affected but to much less extent, and none of the tortuous dilatations were larger than a lead pencil. The total bulk of the affected omentum was very considerable, and while feeling certain at the time that we were dealing with a condition due to enormously dilated lymph-vessels, I was uncertain what course to take, but finally removed the entire omentum after ligating along the lower border of the colon. The blood-vessels, particularly the veins, were enlarged, many to the size of a lead-pencil. In the gastrocolic omentum, there was considerable fat, and the dilatations were much fewer, varied in diameter at different points of their course, and were unmistakably dilated and tortuous lymph-vessels.

Below the transverse colon, together with the large cysts, were others identical in appearance with those just described in the gastrocolic omentum, and it was plain that all, even the largest, were cysts formed by more or less enormously dilated lymph-vessels.

The cystic dilatations all presented the same general characteristics. The thin, transparent walls were lined with endothelium as well as covered by it. The fluid was clear, amber-colored in some and rose-colored in others, and the specimen presented a strikingly beautiful picture as it was withdrawn from the abdomen. Many of the elongated cysts closely approximated each other at their distal, expanded extremity and were only separated by an exceedingly thin membrane. The fluid was neutral in reaction and coagulated on boiling. Microscopically, it contained lymphocytes, multinuclear leukocytes and red blood-corpuscles in varying proportion in the different cysts. The intervening omentum contained little or no fat.

The cysts in both these cases all showed a characteristic lobulation or sacculation comparable to that of the distended colon, as can be seen in the photograph of Dr. Brewster's case. This is an important point, for it was noted in the case of Gairdner in 1851, the first reported case of cyst of the omentum, and proves his case to have been also really a cystic lymphangioma. The case was that of a woman who died unexpectedly and on autopsy was found to have a large fibroid uterus; in addition, a cyst was found, between the folds of the great omentum, measuring between 3 and 4 inches in length and from ½ inch to 1½ inches in diameter. "It was lobulated externally like that of the distended colon but in no part subdivided by complete septa, the fluid was a transparent colorless serum containing numerous flocculi." This case is unquestionably one of cystic dilatation of a single lymph-vessel. Whether in these two cases just reported, the adhesion to the fibroids bore any causal relation to the dilated lymph-vessels, I cannot believe, for the reason that such adhesions of the omentum are very common, but a resulting condition of the lymph-vessels, such as occurred in these cases, has never before been recorded. On the other hand, serous cysts of the omentum have formed adhesions at times to the parietes and other viscera, as might be expected, and very likely would form adhesions to a fibroid. That both these almost unique cases should have had so many other points in common, only goes to substantiate the doctrine of duality in rare affections.

The chief points of interest in these two cases are: first, the fact that the elongated cysts were unquestionably dilated lymph-vessels; second, that in many cases they were only separated by an exceedingly thin wall or septum; and third, that the blood-vessels between them and over them were in many cases greatly dilated.

Passing now to the consideration of cysts of the omentum, I am of the opinion after a critical review of the literature on the subject, that there have been twenty cases of serous cysts recorded, including one about to be recorded by me. To these, the cases of Brewster and myself may be added as multiple cystic lymphangiomata of the omentum, making a total of twenty-two cases. The case just referred to was seen some years ago in consultation with the late Dr. Brigham of San Francisco. The patient was a woman of 30, who had

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* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911

herself discovered a tumor in her abdomen five years previously. It had never troubled her but had slowly increased in size. On examination, a firm but elastic tumor about the size of the closed fist and movable in all directions was found a little to the left of the middle line of the abdomen just below the umbilicus. Apparently it was not attached to the uterus or ovary, both of which appeared to be normal. A diagnosis of either omental cyst or an ovarian cyst with a very long pedicle was made, on account of the absence of symptoms and the very free mobility. Operation was advised, but the patient declined to submit. A year later, however, the tumor was removed by Dr. Brigham, who found it was a unilocular cyst containing a pint of clear straw-colored fluid. Its walls were thin and covered with endothelium on both external and internal surfaces. It had no pedicle but was within the omentum, a considerable portion of which was removed with the tumor. The fluid was not examined.

Hasbrouck,[1] in 1907, collected reports of all the cases of cysts proper of the omentum up to that year, and placed the number at twenty, including his own. He did not, however, include a typical case of serous cyst reported by Schwarzenberger and operated on by Czerny in 1894, but he included several cases that, like his own, were malignant growths of the omentum with cystic degeneration and hemorrhages, and one that was due to perforation of a traumatic ulcer of the stomach, which had been protected by the omentum within the folds of which was a collection of sour-smelling fluid, containing particles resembling stomach contents, and which does not deserve to be called a cyst at all. Since his very complete abstract of cases in 1907, there have been cases of true cysts of the omentum reported by Wakefield in 1907, Seefisch in 1909, Rodman in 1909 and Gifford in 1910.

From this record, it is evident that true cysts of the omentum are of rare occurrence. Of reported cases of omental cysts in general, a few are hydatids, primary in the omentum (as is certainly possible) or cysts which, originating in the liver, have become attached to the omentum and in time become entirely separated from the liver, as is believed to be always the case by some observers. Several of the tumors are dermoid cysts, others are cysts decidedly of an ovarian character, either attached to the omentum or enveloped in it. These are believed to have had an ovarian origin in the first place, and subsequently gaining their blood-supply from the omentum, through adhesions, have gradually become detached from the ovary until they are at last entirely free from it and nourished by the omental vessels alone. In one such case reported by Ormsby,[2] the fimbriated extremity of the Fallopian tube was attached to a large cyst which was entirely free in the abdominal cavity except for an attachment to the omentum. It is not improbable that some of the solid tumors of the omentum originate in the same way. In my case, the pedicle connecting the fibroid with the uterus was considerably smaller than the one connecting it with the omentum, and was much less vascular. It seems very reasonable that in time it might have been entirely separated from the uterus. Chylous cysts of the omentum are not found in the omentum at all but in the mesentery, and not a single one is recorded in spite of the statements of some writers that they occur. Degeneration of lymph-glands, giving rise to semi-cystic growths in the mesentery, are recorded, and Rokitansky attributed the origin of some cysts of the omentum to this source, but I cannot find any record of such. Primary malignant disease of the omentum is not so infrequently met with, and may undergo cystic degeneration, and from hemorrhage give rise to enormous cystic tumors containing blood, as described by Hasbrouck. In some of the cases, it has been difficult to make out from the records whether they were of malignant origin or not, and these I have classed as doubtful; particularly is this the case where the cysts were multilocular and the contents greatly altered as a consequence of ancient hemorrhages into them. Secondary involvement of the omentum in malignant disease is quite common and of no particular interest whether cystic in character or not. Altogether there are recorded up to January of this year forty-three cases of cysts of all kinds, within or dependent from the omentum, which number the cases of Dr. Brewster and myself bring up to forty-six. Of the twenty-two which I believe to be true serous cysts, nine occurred at ages from 1 to 4 inclusive; six occurred from 5 to 11; the ages of the other patients were 17, 19, 22, 30 and 42, the remaining two were adults, age not stated; sixteen were females, six males.

If, however, one arranges these cases according to the ages at which the abdominal swelling was first noticed, we find that four and possibly five occurred between 1 and 2 years, six between 2 and 4 years, five between 4 and 10 years, three between 10 and 20 years, and only four above 20. In one of the last-mentioned cases the patient noticed the tumor six years before operation, at which time she was 21. In the remaining three cases the trouble was discovered by accident either at operation or autopsy

Abstracts of the histories of these cases are as follows:

Case 1 (Gairdner[3]).—*Woman, age not stated, died unexpectedly. At autopsy she was found to have a large fibroid uterus. In addition, a cyst was found between the folds of the great omentum measuring between 3 and 4 inches in length, and from a half an inch to 1½ inches diameter. It contained a transparent colorless serum, containing numerous flocculi.*

Case 2 (Gooding[4]).—*Girl, aged 18, noticed a lump about the size of a hen's egg low down in the right iliac fossa, which was painful, chiefly at menstruation. At time of operation, four years later, it was the size of a cocoanut. It was diagnosed as an ovarian cyst with a long pedicle. Operation disclosed a cyst in the gastrocolic formation firmly adherent to the parietal peritoneum and imbedded in the folds of the omentum. There was no pedicle.*

Case 3 (Spencer Wells[5]).—*Girl, aged 5, had had a large abdomen since infancy, growing steadily for past two years. On operation a single cyst of the omentum was found attached to the abdominal wall and cecum. It contained four pints of a clear, watery fluid. In the upper part of the omentum were a few small cyst-like collections of fluid resembling grapes. Some were removed, others simply pricked. A specimen was examined by Ransom, who found it to consist of three very thin-walled cysts, the largest holding a quart, the next half a pint, the smallest the size of an egg. There was no endothelium on the inner surface. He states that it was not hydatid; but he thought perhaps it was inflammatory.*

Case 4 (Erdheim[6]).—*Woman, aged 22, had a tumor, first discovered five years before, without known cause; according to the patient's account it reached its present growth in fourteen days. Operation disclosed a bluish, transparent cyst wall adherent over a wide area and covered with omentum. The tumor reached from the transverse colon to the bladder and had no conection with any of the pelvic organs.*

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1. Hasbrouck: Ann Surg., 1908, xlviii, ii, 206.
2. Ormsby: Brit. Med. Jour., 1883, i, 578.
3. Gairdner: Tr. Path. Soc. London, 1851-52, 374.
4. Gooding: Lancet, London, 1887, 311.
5. Wells, Spencer: Brit. Med. Jour., 1880, 1302.
6. Erdheim: Wien. klin. Rundschau, 1896, x, 131.

Case 5 (Marfan[7]).—The patient was a girl, aged 2½ years. Her mother had noticed that the abdomen had always been large and at the age of 15 months the enlargement began to increase and continued to do so steadily for the succeeding year. The general health was not affected until a few weeks before operation, when the child began to emaciate. An aspirating needle was inserted and about two liters of black hemorrhagic fluid evacuated. This gradually reaccumulated, and it was decided to operate. Operation revealed a multilocular cyst within the folds of great omentum. It had a pedicle and contained a large quantity of bloody fluid.

Case 6 (Hearn[8]).—The patient was a boy, aged 8. At birth, his physicians noted that the abdomen was markedly distended. This disappeared after a few weeks and was not again noticeable until he had become 6 years of age, when the abdomen began to distend. In the meantime, he enjoyed good health. Although the abdomen increased rapidly in size, the only difficulties he experienced were those due to distention and pressure. The abdomen was enormous, measuring 44 inches in circumference, and an omental cyst was suspected, owing to lack of symptoms of other troubles. Operation disclosed a cyst containing a dark yellowish-brown, turbid fluid and many other cysts. After evacuating a number, the mass was drawn out and found to be attached to the great omentum, between the folds of which it had developed. The fluid was alkaline in reaction and contained a large amount of albumin. Jacobi regarded this as a case of hydatid cyst and instanced it as a warning of the care and circumspection required in making an accurate diagnosis in cases of cysts of the omentum. From the history, however, I cannot see why this statement should have been made.

Case 7 (Braithwaite[9]).—Girl, aged 4, measured 22¾ inches at level of umbilicus; this had increased during two months. The tumor was found to be entirely within the folds of the great omentum and with the exception of adhesions to the intestine was easily removed. It contained 3½ pints of fluid.

Case 8 (Jacobi[10]).—The patient was a girl, aged 7. Four years previously the abdomen began to swell and the child lost weight. A diagnosis of tuberculous peritonitis was made, the abdomen tapped and two quarts of a clear, slightly bloody serum was drawn off. After two years the swelling returned and was tapped a second time. Subsequently it was operated on. Operation disclosed a large cyst, containing about 2 quarts of fluid, with a number of recesses communicating with the main cyst. It involved the greater part of the great omentum and narrowed into two pedicles as it approached the colon. The cyst was lined externally and internally with endothelium. The contents were gelatinous and finely granulated, and consisted of coagulated serum with multinuclear and eosinic forms of leukocytes, endothelial cells and a few red blood-cells. Staining by Weigert's method showed absence of fibrin.

Case 9 (Marsh and Monsarratt[11]).—The patient was a girl, aged 1 year 8 months, whose abdomen was noticed to be enlarged about four months previously, but there was no complaint of pain. It was tapped four times. Operation showed a thin-walled multilocular cyst springing from the gastrocolic omentum and entirely enveloped in it. It contained about 10 pints, and consisted of one large cyst and many independent smaller ones, and it had an attachment to the right iliac fossa. The external surface was covered with endothelium; internally it was lined by a coat of fine connective taissue containing numerous blood-vessels. The walls of the smaller cysts were better defined and afforded better support for the blood-vessels than in the large cyst, where the vessels were large and thin-walled.

Case 10 (Schramm[12]).—Female, aged 1 year. Swelling of the abdomen noticed four months before. Operation disclosed the fact that the entire omentum was made up of a conglomeration of cysts, varying in size from that of a nut to twice the size of the fist. About 3 or 4 cm. of the omentum, next the transverse colon, was quite normal. The cysts contained a clear rose-colored fluid.

Case 11 (Boyd[13]).—The patient was a boy, aged 11, whose health was excellent until a few months before operation, at which time his abdomen began to swell and the swelling steadily increased. He had constant pain in the lower abdomen, but never of a severe character, and he had become much emaciated. Operation disclosed a large, thin-walled cyst covered by and occupying the cavity of the great omentum and containing a large amount of greenish-brown fluid. The cyst was attached to the pancreas, but did not spring from it.

Case 12 (Schwarzenberger[14]).—Girl, aged 4¾ years, was operated on by Czerny. The cyst contained 3 liters of a clear serous fluid, and was multilocular. It was diagnosed as a lymph-cyst of the great omentum.

Case 13 (Young[15]).—Girl, aged 9½ years, had a swelling, noticed for more than a year previous. There was no pain. At operation, a thin-walled cyst was found containing many other cysts. It involved the anterior layers of the great omentum, part of which was normal and adherent to the stomach. It contained 32 pints, besides 5 or 6 that were lost on the floor, of a dark brown fluid, which was evidently broken-down blood and serum. The fluid in the cyst was not examined.

Case 14 (Matthews[16]).—Boy, aged 8, nine months previously he had complained of pain in the left side, following which there was a gradual distention of the abdomen. This continued till the abdomen measured 27 inches. On operation a cyst was found containing 6 pints of a dark brown fluid. It was attached to the transverse colon by a thick pedicle, made up of omentum.

Case 15 (Fort[17]).—Girl, aged 2½, had an abdominal enlargement, noticed eighteen months previously. At the time of operation the abdomen measured 28 inches. There were no symptoms other than dyspnea. Operation disclosed a cyst between the layers of the great omentum containing an enormous collection of fluid. There was an absence of distinct capsule other than the peritoneal covering of the omentum, the fluid being between the folds of the omentum.

Case 16 (Wakefield[18]).—Boy, aged 4, had an enlargement of the abdomen; noticed at least two years before. At the time of the operation, the abdomen was enormously distended. Operation disclosed a tumor larger than a man's head, consisting of a number of various sized thin- and clear-walled cyst chambers, the bulk of the mass being made up of a single cyst. The fluid contained in the cyst was clear, straw-colored and neutral in reaction. It coagulated on heating with a drop of acetic acid.

Case 17 (Rodman[19]).—Patient was a girl, aged 17. On operation, a cyst which, together with its contents, weighed 60 pounds was found beneath the parietal peritoneum, covered by another layer of peritoneum. It had no pedicle, was unilocular and contained a clear fluid. It shelled out like a walnut, only one small vessel being tied.

Case 18 (Seefisch[20]).—Patient was a boy, aged 4, whose mother had noticed a swelling in the abdomen a short time before. On operation, an enormous cyst was found dependent from the hepatic flexure of the colon by a pedicle the thickness of a lead-pencil. The contents measured from 2½ to 3 liters. The wall of the cyst was very thin and consisted only of the web of the great omentum.

Case 19 (Gifford[21]).—Boy, aged 6, had a swelling, first noticed six months previously, when the patient complained of pain in umbilical and hypogastric regions. On operation, a cyst the size of a cocoanut was found in the substance of the omentum and was adherent to the anterior abdominal wall. The omentum was ligated and divided and the cyst easily removed. It was multilocular and contained a clear straw-colored fluid. The interior of the cyst wall was lined with a smooth membrane.

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[7] Marfan: Presse méd., 1896, p. 133.
[8] Hearn:—Ann. Surg., 1897, xxv, i, 703.
[9] Braithwaite: Lancet, London, 1898, ii, 1472.
[10] Jacobi: Tr. Assn. Am. Phys., 1901, xvi, 232.
[11] Marsh and Monsarratt: Brit. Med. Jour., 1901, i, 511.
[12] Schramm: Zentralbl. f. Chir., 1903, xxx, 564.
[13] Boyd: Clin. Jour., 1903, xxi, 306.
[14] Schwarzenberger: Beitr. z. klin. Chir., 1894, xi, 713.
[15] Young: Lancet, London, 1905, i, 157.
[16] Matthews: Brit. Med. Jour., 1905, ii, 1642.
[17] Fort: Ann. Surg., 1907, xlv, iii, 382.
[18] Wakefield: Surg., Gynec. and Obst., 1907, v, 227.
[19] Rodman: Ann. Surg., 1909, xlix, 427.
[20] Seefisch: Deutsch. med. Wchnschr., 1909, xxxv, 1790.
[21] Gifford: Brit. Med. Jour., 1910, 1289.

There are three cases that I regard as doubtful. One is a case reported by Simon[22] in 1858. The patient was a man, 44 years of age, who had a large tumor of the abdomen, which had been present to his knowledge for twelve years. It had never pained him. He died five days after admission to the hospital, and at autopsy a thick-walled cyst was found in the omentum, full of coagulated blood. It might have been an endothelioma or some other malignant growth with cystic degeneration. Another case was reported by Cazin,[23] in 1893. The patient, a man aged 48, had a tumor which had developed without known cause and had gradually enlarged. It was diagnosed as a cyst of the pancreas, but operation showed it to be a cyst of the great omentum adherent to the large intestine. The third case was reported by Edebohls,[24] in 1893. The patient, a woman aged 37, had noticed the enlargement eight [illegible] On operation, a cyst containing a [illegible], was found attached to the lower border of the omentum by a pedicle 10 cm. wide and 2 cm. thick. A large circular area opposite the pedicle was gangrenous. The case was probably originally a cyst of the ovary with a pedicle, which had become attached to the omentum and subsequently separated from the ovary.

There are several cases to the histories of which I have been unable to gain access. Dewitsky and Morosow[25] in 1905 reported a case of "pouch-shaped lymphangioma of the omentum." Giannettasio[26] in 1907 reported a case of blood-cyst of the omentum. Karas[27] reported a case of multilocular cyst of the omentum in 1907. Holleman[28] reported an omental cyst in 1908. Costa[29] reported a case of cyst of the great omentum in 1908. Villar[30] reported a case of cyst of the lesser cavity of the omentum in 1908. These, however, I do not think would affect the general conclusions arrived at in this paper.

As to the etiology of the conditions of the omentum with which this paper is principally concerned, Jacobi stated in his paper on "Cysts of the Omentum" read before the Association of American Physicians in 1901, that he believed most, if not all, of them had their origin in the lymph-vessels of the omentum. Hasbrouck believes most of them to be endotheliomata and disbelieves that many have a congenital origin. Wakefield believes most of them t[illegible] Many express their belief in a [illegible] own particular cases.

It is exceedingly significant that the swelling of the abdomen was first observed at some period between 1 and 10 years of age in fifteen of the twenty-one patients operated on, and in ten of these, or nearly one-half of all the cases, the swelling was noticed between 1 and 4 years of age. This, I think, must speak for a congenital origin.

We find congenital cystic lymphangiomata in other parts of the body, notably in the tongue and root of the neck, and I think the condition in question comparable to the latter—the so-called "cystic hygroma of the neck" which may attain a very considerable size.

The two cases that form the basis of this paper were in adults and were unquestionably cystic lymphangiomata—so also was Gairdner's case.

In Hearn's case the abdomen was noted to be enlarged by the patient's physician at birth, but as the child grew the swelling disappeared, to be noted again at 6 years, from which time it increased till operation two years later. Spencer Wells' patient had three large cysts and many independent smaller ones, some of which were pricked and others removed. This case was in a child of 5, whose abdomen had slowly increased in size since infancy.

In Jacobi's case, the swelling of the abdomen was noticed when the child was 3 years of age. A large cyst was found, which had many recesses communicating with it through large openings.

In Marsh and Monsarratt's case, in an infant in whom swelling of the abdomen was noticed at 16 months of age, a large cyst was found and many independent smaller ones.

Schramm's case was in an infant of 1 year. Operation disclosed the fact that the entire omentum was made up of a conglomeration of cysts varying in size from that of a nut to twice the size of the fist. The 3 or 4 cm. of the omentum next the transverse colon was quite normal. This description might very well be applied to either Dr. Brewster's case or mine.

Wakefield's case had a tumor consisting of a number of various-sized thin- and clear-walled cyst chambers, the bulk of the mass being made up of a single cyst. The swelling of the abdomen was noticed first at 10 years of age and the child was operated on two years later.

In most of these cases the cyst contents were similar to those found in the three cases in adults that were discovered accidentally.

It would seem that the variations in the individual cases can be readily explained as follows:

In some there was but a single lymphangioma, as in Gairdner's case; in others, many of them. As these increased in size, the delicate septum between some of them broke down forming a large cyst around or within which were others in which the septum was intact; thus a multilocular cyst would be formed of various-sized cysts around a large one.

Jacobi's case would seem to bear out this idea, for in his case portions of the septa were left between the cysts and the cyst narrowed into *two* pedicles as it approached the colon. In some cases the cyst was lined with endothelium, in others not. The latter would be very likely the case if the cyst or cysts ruptured between the layers of the peritoneum constituting the omentum, and increased in size by simply separating these layers.

It was noted in many of the cases, particularly of the larger cysts, that the blood-vessels were large and thin-walled and poorly supported by connective tissue, and it is reasonable to suppose that these dilated and thin-walled vessels should also occasionally rupture. This admixture of blood at various times and in various amounts, with the original cyst contents, would explain the difference in the character of the fluid found in different cysts and also perhaps the rapidity of growth observed in some of the cases.

These various changes might take place slowly or rapidly—in most cases rapidly, as shown by the fact that operation was called for in so many of the cases within the first ten years of life. In others no inconvenience was occasioned till later in life and in some the

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22. Simon: Bull. Soc. anat. de Paris, 1858, xxxiii, 30.
23. Cazin: Bull. Soc. anat. de Paris, 1893, lxviii, 312.
24. Edebohls: New York Jour. Gynec. and Obst., 1893, p. 614.
25. Dewitsky and Morosow: Arch. f. Kinderh., 1905, xlii, 247.
26. Giannettasio: Gazz. d. osp., 1907, xxviii, 939.
27. Karas: Virchow's Arch. f. path. Anat., 1907, clxxxviii, 138.
28. Holleman: Zentralbl. f. Gynäk., 1908, xxxii, 297.
29. Costa: Gior. internaz. d. Soc. med. Napoli, 1908, xxx, 355.
30. Villar: Jour. d. méd. de Bordeaux, 1908, xxxviii, 219.

condition was only discovered by accident, either at operation or at autopsy.

So far as diagnosis is concerned, it has been observed by all writers that this is practically impossible before operation. Most of the cases have been mistaken for tuberculous peritonitis with ascites, or for an ovarian cyst with a long pedicle. In cases of moderate-sized cysts originating below the colon, in which adhesions have not taken place, the free mobility and absence of symptoms referable to any other organ might give rise to a suspicion of the nature of the cyst. In those that fill almost the entire abdomen or are adherent, or originate in the gastrocolic omentum, the diagnosis is practically impossible before operation. All of these patients recovered from operation, although some of the cysts were enormous. In Rodman's case, in a girl of 17, the cyst and contents weighed 60 pounds, and in Young's case, in a girl of 9½, the contents measured 32 pints, besides 5 or 6 that were lost on the floor.

Dr. Fitz stated, in regard to my case of multiple cystic lymphangiomata, that, had I not removed the omentum, there was every reason to believe that in time a large cyst might, could or would have developed. I think there is every reason to believe that in all these cases of true serous cysts, the cysts could, would and did develop from congenital cystic lymphangiomata of the omentum.

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ENDEMIC MEDITERRANEAN FEVER (MALTA FEVER) IN SOUTHWEST TEXAS

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During recent years there have been a few cases of continued fever of long duration, frequent relapses and a low mortality, in the Pecos River country. Four such cases recently occurred in the practice of Dr. R. M. Scott, of Del Rio. The four patients, all young men from 11 to 20 years of age, had worked at a goat camp where they had lived for three months, quartered in a house surrounded by the dusty bedding ground of the goats and were using goat's milk from the herd, some of which were ill of "goat fever." The fact seemed significant and it was suggested by me to Dr. Scott that the fever was possibly Mediterranean fever. After agglutination tests had been made with the *Micrococcus melitensis* on the four cases with positive results, Dr. S. L. Boren mentioned that he too had a patient, a goat ranchman, ill of continued fever with symptoms not unlike those manifested by the four boys. An agglutination test with the *Micrococcus melitensis* was positive in this case also.

The following is a brief history of each case and the result of the agglutination tests. Malaria was excluded in each case by blood-examination. Quinin given in large doses over a period of two weeks had no marked effect on the temperature in any of the five patients.

Case 1.—C. E., aged 12, was a goat herder, whose family and personal history were unimportant, except that the patient had chills and fever three years ago in east Texas. The present illness began May 10, 1911, with slight evening temperature, chilly sensations, headache, especially pains at the back of his neck and in right ear. The patient had general aches and pains, especially in both knees, wrists and arms. He was brought to Dr. Scott at Del Rio for treatment, May 19.

Examination.—The patient was found to have an enlarged spleen, tympanites, profuse sweating, nose bleed and obstinate constipation. Both wrists were painful on pressure. The temperature ranged from 102.5 to 103 F. From June 20 to 23 the patient was free from fever, then it returned to 103 without obvious cause. He had diarrhea for two days followed by obstinate constipation, pains all over the body, tympanites, and profuse sweating as before. July 1, he appeared very emaciated, anemic and severely ill. His temperature ranged from 99 to 102.5 F. daily.

Agglutination tests—macroscopic method: *Bacillus typhosus*, 1-50, negative. *Micrococcus melitensis*, 1-50, positive in 15 minutes. Normal control—negative.

A report from the Maneuver Division Laboratory, San Antonio, Texas, by Lieut. George B. Foster, M.C., and Lieut. Taylor E. Darby, M.C., stated that serum from Case 1 gave positive agglutinations with the *Micrococcus melitensis* in dilutions of 1-80, 1-160 and 1-320 in 10 to 45 minutes by both the microscopic and macroscopic methods. Typhoid control, 1-40 negative; normal controls, 1-20 negative.

Case 2.—L. E., aged 11, was a goat herder, whose family and personal history were unimportant, except that the patient had chills and fever in 1908 in east Texas. The patient became ill May 16 when he began having an evening temperature, headache, ear-ache and pains in the back of his neck. At times he felt chilly, but he had no definite chill. He went to bed May 20, and May 30 he was brought to Del Rio. When the patient arrived, he had a slight temperature, but it soon returned to normal and remained so for five days when it returned to 101 F. followed by diarrhea and two days later by obstinate constipation. The temperature remained at 99-100.4 F. until June 20 when it again became normal for three days. The fever returned and remained at 99-100.2 F. until July 1, when it reached normal. During the last relapse the patient suffered severely with his hip, which was so painful it could not be moved. At present he is somewhat emaciated and very anemic.

Agglutination tests—macroscopic method. *Bacillus typhosus*, 1-50, negative. *Micrococcus melitensis*, 1-100, positive in 20 minutes. Normal control, negative.

Case 3.—K. E., aged 12, was a goat herder, whose family and personal history were unimportant, except that the patient had chills and fever in east Texas in 1908. The patient became ill May 20 with fever at night, headache, pain in the back of the neck and ear-ache. He ached all over, being especially sore in his arms. The bowels were constipated. When brought to Del Rio for treatment, he had some tympanites, enlarged spleen, profuse sweating and nose bleed. His temperature was 100-101 F. June 18, the temperature returned to normal, but June 20 it went up to 104 F. followed by diarrhea, headache, and profuse sweating. The fever then remained at 100-101 F. and July 1 it had again reached nearly normal. He is also anemic and somewhat emaciated.

Agglutination tests—macroscopic method. *Bacillus typhosus*, 1-50, negative. *Micrococcus melitensis*, 1-50 positive in one hour. Normal control, negative.

Case 4.—R. E., aged 20, was a goat herder, whose family and past history were unimportant, except that the patient had pneumonia in 1907. He became ill May 20 with slight sore throat, headache, bone-ache, "dumb chills" and fever, first in the morning, but later it became high at night. The patient had a cough and spit up stringy sputum. The bowels were normal and the appetite good. After the illness began, the patient left home and traveled through Mexico and New Mexico where he consulted several physicians who advised him to go to a hospital. After spending a few days in a hospital in El Paso, he came to Del Rio, June 10. When seen by Dr. Scott, he had tympanites and enlarged spleen. His temperature was 99-99.5 F., but became normal June 15. June 18, he returned home and the fever again appeared with intense pain in his shoulder and knee and later in the elbow. When seen by me, the patient would cry out if any attempt was made to move his elbow or shoulder. He is very anemic and looks decidedly ill. His temperature was 102 F. at the time of the examination. The patient eats heartily and sits around the house taking an interest in everything.

Agglutination tests—macroscopic method. *Bacillus typhosus*, 1-50, negative. *Micrococcus melitensis*, 1-50, positive in one hour. Normal control, negative.

CASE 5.—L. H., aged 35, is a goat ranchman whose family and personal history are unimportant. He became ill May 15, 1911, with headache, especially with pain at the back of his neck and general pains all over his body, which he called "rheumatism." The patient had some cough, a slight fever with a chilly feeling and some sweating. He came to Del Rio May 30, riding forty miles for treatment, in a carriage. When he was seen by Dr. Boren, his temperature was 103.5 F. He had slight tympanites, enlarged spleen and had to have medicine to move his bowels. He had one severe nose bleed. In four days the patient was clear of fever and returned home June 7 feeling well, except for weakness. June 11, the fever returned with pains all over his body, the ankles became swollen and painful and he had severe pains in both shoulders and in the back of the neck. The right testicle became swollen to three times its normal size. He then returned to Del Rio June 23 for treatment. Although always rather light in weight, he lost twenty-one pounds and is extremely emaciated. His anemia presented the blood-picture of a severe secondary type. No leukocytosis was present. The spleen is still enlarged and the bowels constipated. His appetite is good. The temperature now ranges from 99.5-101 F. He states that he has never drunk goats' milk, but that he has worked with his goats, feeding and herding them.

Agglutination tests—macroscopic method. *Bacillus typhosus*, 1-50, negative. *Micrococcus melitensis*, 1-50, positive in 15 minutes. Normal control, 1-20 and 1-50, negative.

A report from Major F. F. Russell, M.C., and Captain Charles F. Craig, M.C., of the Bacteriological Laboratory, Army Medical School, on the blood from Case 5 states that agglutinations were secured in dilutions up to 1-640; normal controls 1-20, negative.

It is possible that the goats of the Pecos River country, and doubtless along other sections of the border, are infected with the *Micrococcus melitensis*. The drinking of goats' milk in the Pecos River country is not common except among Mexicans and those located at isolated goat camps. Along some sections of the border I am told as much goats' milk is drunk as cows' milk, this being especially true for the Mexican population.

This endemic occurrence of Malta fever in Texas is now being further investigated by Lieut. Gentry and myself.

THE SURGICAL TREATMENT OF MEGACOLON [*]

WALLACE I. TERRY, M.D.
SAN FRANCISCO

The term "megacolon" is used to include the different forms of chronic dilatation of the colon, whether of congenital or acquired origin. Hirschsprung's disease includes only the congenital, and so far as we know, the idiopathic dilatations of the colon. As it has been impossible in the majority of the reported cases to determine, either at operation or autopsy, whether they were really congenital or acquired, it would seem best to describe them as cases of megacolon. The term "pseudomegacolon" is a misnomer, for if there is a megacolon at all, it can scarcely be called "pseudo."

The etiology of this condition is obscure. There are undoubted cases which show that it is often congenital, such as the cases of Konjetzny[1] in a fetus of seven months and in a child of three days, while the occurrence of cases in individuals from 50 to 88 years of age, would tend to put some of them in the category of acquired megacolon. In a fair proportion of the reported cases there has been obstruction of the bowel by tumors, by strictures, by kinks, by valve formations or by spastic contraction of the rectum or anus, but in the great majority of cases no such obstruction can be found. There are a number of theories to account for the latter group, among which are to be mentioned the following: Abnormal length of the mesosigmoid; abnormal length of the sigmoid; chronic colitis; neuropathic changes in the sympathetic system; and defective development of the muscular coats in some part of the colon. Indeed, it would seem, as Finney[2] and Schmidt[3] have stated, that no one theory yet advanced is a sufficient explanation of the etiology of all the cases.

Pathologically we find a number of interesting features in megacolon: great distention of the abdomen; thinning of the abdominal walls; increase in the length of the colon; dilatation of the colon even up to 10 inches in diameter; hypertrophy of the wall of the colon (in one case, reported by Finney, it was 3.55 cm. or 1⅜ inches, and others have reported a thickness of 2 to 3 cm.); and changes in the mesocolon, generally a hypertrophy. The sigmoid is more apt to be dilated than any other portion of the colon, and in a series of 104 cases analyzed by Puls, it was found that the sigmoid alone was the seat of the disease in 35 per cent., the entire colon was dilated in 27 per cent., and the sigmoid, either alone or with other segments, was involved in 84 per cent. of the cases. Occasionally coproliths of large size are present, as in one of the cases I am about to report.

In a small proportion of the cases a practical cure can be obtained by medical treatment, regulation of the diet, massage of the abdomen, irrigation of the colon and the proper use of laxatives and cathartics. The success of medical treatment will depend in large measure on the tonicity of the colon and the contraction of its lumen to normal or slightly above normal size. When, however, there is a definite obstruction which causes the dilatation, or medical treatment fails after a reasonable time, the condition becomes surgical and operation should not be delayed.

A few cases have been reported in which no further surgery than a dilatation of the rectum or a division of rectal valves was necessary to effect a cure; in others the removal of tumors pressing on the rectum has given good results.

The great majority of cases, however, require some direct interference with the dilated colon, and along these lines a number of different procedures have been advocated. The establishment of a fecal fistula, or an artificial anus, is advisable as a temporary expedient for acute obstruction or as a safety-valve in some of the more elaborate anastomoses or resections. Finney emphasizes the value of making a colostomy in healthy bowel above the dilated segment. As a curative measure it is scarcely justifiable, for few patients would tolerate it as a permanent proposition, unless all other means had failed to cure.

Colotomy with the removal of fecal tumors has been resorted to a number of times, when the masses have been too hard to break up without endangering the bowel. It is interesting to note that the presence of coproliths has often led to errors of diagnosis. In a case reported by Kraske, a segment of the colon containing a coprolith was resected in the belief that it was a true tumor. Puls[4] reports a case in which Delkeskamp removed a coprolith and immediately sutured the opening in the colon. Twenty months later another coprolith had formed and after removing it by a colotomy, he made an ileosigmoidostomy resulting in a cure.

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[*] Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

[1] Konjetzny: Deutsch. Ztschr. f. Chir., 1909, xcvii, 224; Beitr. z. klin. Chir., 1911, lxxiii, 155.

[2] Finney: Surg., Gynec. and Obst., 1908, vi, 624. (Full bibliography.)

[3] Schmidt: Beitr. z. klin. Chir., 1909, lxi, 682. (Full bibliography.)

Colopexy, either a high or a low fixation of the bowel, has proved of value in a few cases, but it would ordinarily be contra-indicated because of the bad effects of fixation of a mobile portion of the colon to the abdominal wall.

Coloplasty, based on the principle of pyloroplasty, has been done a few times without notable success.

Longitudinal plication has been done ten times with six successes and four failures. Bastianelli is credited with having first performed this operation and, so far as I am able to ascertain, it was next done in one of the cases I am about to report. I am inclined to believe that, like colopexy and coloplasty, it will not play any important part in the operative treatment of megacolon.

Exclusion of the bowel by various anastomoses is an important procedure and has been successfully used in many of the reported cases. The anastomoses to be made depend on the particular case, but as a rule an ileosigmoidostomy or a colocolostomy are the operations of choice. In a few cases, the anastomosis of ileum and sigmoid has led to severe diarrheal troubles, but the procedure is generally well tolerated. It has also been [illegible] that the short-circuiting operations did not always [illegible] cking of the excluded bowel with fecal matter. [illegible] owever, an entero-anastomosis fail to give a [illegible] sult, it does not usually interfere with a resec[illegible]on of the remaining dilated colon.

Resection of the giant colon would seem to be the ideal operation. It is a more formidable procedure than any of the above-mentioned and should not be done as the primary operation in a fair proportion of the patients already much weakened by the effects of a megacolon. I believe, however, that more primary resections will be done in the future, now that we have learned better how to prevent and combat shock. Earlier diagnosis of the disease and further improvement in the technic of intestinal resection, will also be important factors in the successful treatment of megacolon.

The two cases which I desire to report seem to have been true cases of Hirschsprung's disease, generally designated in English literature as "congenital idiopathic dilatation of the colon." The first case is an unreported one of Dr. T. W. Huntington, and it is by his courtesy that I am putting it on record. The original case history was lost in the San Francisco fire of 1906.

Case 1.—Mrs. G., aged 28 years, with unimportant family history, had always been rather delicate and had suffered for many years from chronic constipation, from which she obtained relief by the daily use of enemas or cathartics. She came under the care of Dr. Huntington in the early part of 1901, complaining of a mass in the upper abdomen which had been noticed for two years and was gradually increasing in size. The mass was about 6 inches in diameter, was firm and very freely movable from side to side. The patient was seen by several other physicians, but the correct diagnosis of fecal tumor in a megacolon was not made until the operation. At the operation, in which I assisted Dr. Huntington, an enormous dilatation with thickening and lengthening of the entire colon was found. The hard fecal tumor was in the transverse colon, and by manipulation was broken up and later washed out through the rectum, there being no stricture of any kind in the bowel. Having in mind plication of the stomach for dil [illegible] of th [illegible] on, I suggested a longitudinal plication of the colon, which was carried out by means of several rows of sutures. The patient recovered nicely from the operation and is now, ten years after the operation, perfectly well, although she has never obtained a weight above 115 pounds. The bowels are regular without artificial aid.

Case 2.—W. S., aged 20, male, single, good family history, had been feeble-minded since early childhood. Patient never had a natural bowel movement since birth, cathartics or enemas being always necessary, and the services of a physician being frequently required to secure relief. The abdomen had always been large and protruding. April 1, 1909, I was called in consultation by Dr. J. T. Gardner, who stated that the boy had not had a bowel movement for three weeks past and that despite the washing out of a large mass of impacted feces and repeated enemas, the marked distention of the abdomen persisted. Tympany was present all over the abdomen except in the right flank. The abdominal wall was thin, peristalsis visible and violent, and loud borborygmi frequently heard. On auscultation a metallic tinkle was heard over the lower abdomen and in the splenic region. No tumor mass was palpable. I made the diagnosis of megacolon and advised immediate operation on acount of the marked obstruction. At the operation, the same day, a median incision was made and there was found a megacolon involving principally the descending colon and sigmoid. The cecum was considerably larger than normal, while the sigmoid was 19 cm. (7½ inches) in diameter. The walls of the dilated bowel were much thicker than normal. Much fecal matter and gas was emptied out by means of rectal tubes, and a longitudinal plication was then performed by means of several rows of linen sutures. The abdominal wall was very thin, there being practically no panniculus adiposis, and the muscle fibers were widely separated. No satisfactory bowel movement could be obtained after this operation, and as the distention reappeared, the abdominal wound was torn asunder, permitting a loop of small intestine to protrude. An enterostomy was, therefore, made a week after the first operation, utilizing the protruding small intestine for that purpose. The patient now began to improve and four months later (Aug. 17, 1909) an attempt was made to close the artificial anus, in the belief that the colon had contracted, but the sutures failed to hold. On Sept. 3, 1909, an incision was made at the outer border of the right rectus, the ileum cut off and laterally implanted in the sigmoid. The artificial anus was found to be four feet from the termination of the ileum and was closed by a resection and a side-to-side anastomosis. It was found at this operation that the sigmoid was again dilated to its original size, but that the plication of the descending colon had been successful in reducing its caliber. The patient survived the last operation only six days and the cause of death could not be determined, an autopsy not being permitted.

In this second case, I feel that it was an error of judgment to perform a longitudinal plication at the first operation and that a primary colostomy in the cecum or colon, followed later by a resection of the dilated portion of the colon, would have been a better procedure.

I have been able to collect reports of 110 cases of megacolon treated surgically, with eighty-two recoveries and twenty-eight deaths: i. e., 74 per cent. and 26 per cent., respectively. Excluding fifteen cases in which nothing more than an exploratory laparotomy was done, we have ninety-five cases with seventy recoveries (73 per cent.) and twenty-five deaths (27 per cent.). The statistics of Loewenstein, made four years ago, showed a mortality of 48 per cent. out of forty-four cases subjected to operation. It would appear as though the death-rate had either decreased rapidly within the past few years, or else that proportionately more of the successful cases had been reported. The latest statistics regarding the medical treatment which I have been able to procure are those of Loewenstein in 1907, which show fifty-nine patients treated, with 34 per cent. recoveries and 66 per cent. deaths.

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[4] Puls: [illegible] 0, lxix, 306. (Full bibliography.)

ABSTRACT OF DISCUSSION

Dr. J. F. Percy, Galesburg, Ill.: I lost one of these patients just a few weks ago, and because the members of this Section are liable to have cases brought under their observation at any time, I think it is well to mention them in connection with the paper.

The patient was a farmer, aged 77; he had a history of what he and his family called dyspepsia, extending over the period really of his whole life; and the attacks of obstruction of the bowels, which were peculiar to this case, were always ushered in after a spell of intoxication. He was a periodical drinker. But he had always been relieved by the use of cathartics. When I saw him a few weeks ago he had been in bed two weeks, he had had 6 drops of croton oil, an unknown quantity of calomel, and a member of the family said he had been given 15 cents' worth of magnesium sulphate at one dose. Most of you can estimate the size of the dose. He was delirious, and the abdomen was moderately and equally distended. Pressure over any part of the abdomen elicited pain, but there was nothing that could be localized. I made an indefinite, tentative diagnosis of twist of the colon. I really did not know what I meant by that, but that was my diagnosis, and I gave a bad prognosis and advised that he be sent to the hospital, which was done.

On opening the abdomen it was found that it was entirely filled with the sigmoid and the descending colon. I made an inguinal colostomy rapidly and put the patient to bed. He died in about thirty-six hours. A feature of the case was the enormous amount of fecal matter, equaling a large water-pail full.

In the diagnosis before operation (and it was peculiarly true in this case) the important point is the history of years of suffering from intestinal pain, which in this instance had been relieved by enormous quantities of cathartics. The history along this line was really quite remarkable. But there came a time when cathartics did not relieve him.

Mr. Harold J. Stiles, Edinburgh, Scotland: I have met with this condition in the children's hospital in Edinburgh and also in my adult service. It is easy to diagnose in children, not only from the physical signs, but from the history which the mother will always give. The child is generally brought to the physician when it is a few years old, because of the obstinate constipation and the relatively enormous enlargement of the abdomen. The mother will tell you that the constipation has been obstinate ever since the child was born, and that it gets gradually worse and worse, and that the abdomen gets bigger and bigger. During this time there is a high degree of fecal obstruction. The bowels sometimes do not move for from two to three weeks, and then a copious and continuous diarrhea occurs with frequent intervals of colicky pains, as the previous speaker has said.

The best thing to do is to open the abdomen and anchor very securely this enormous colon to the abdominal wall, and then open the bowel at once, or a day or two afterward, as the urgency of the case may require. My experience is that some of these patients get along perfectly well with the simple colostomy. In the case of a boy aged 8, colostomy was done five or six years ago; all the distention is gone and the boy is perfectly well. There is only a little leakage when the child's bowels are loose, and the only inconvenience is the passage of wind through the opening, which relieves the tension and prevents the obstruction.

I have tried in a child of 3 the effect of doing a sigmoidectomy. Before the operation is done, care must be taken that the enormous sigmoid flexure and colon are thoroughly well emptied. If they cannot be emptied, preliminary sigmoidostomy should be made before the radical operation. In a little child the small intestine is no bigger than the finger, and the colon may be as large as the lower part of the thigh, and there is danger from the pressure of the large sac against the relatively thin small intestine. In the first case I was very anxious about the patient. For three or four days the child vomited continuously, but at last it got relief and recovered.

In elderly people, with a history of chronic constipation and intermittent obstruction for many years, here, again, the safest thing, I think, is preliminary colostomy. Then at the secondary operation I have done a resection of the sigmoid and as much of the large intestine as was necessary. In one case after doing this the symptoms recurred. Why? Because the distention extends right down to the rectum, and the whole of the sac cannot be resected. Several months after an end-to-end anastomosis it will be found that the same portion of the intestine is again greatly distended at the seat of operation. In that particular case, that of an elderly man, what I had to do was to make a small opening, and ultimately the patient was permanently relieved. There was very little leakage, but enough escape of gas to prevent the patient from getting obstruction.

Dr. Wallace I. Terry, San Francisco: One point suggested by Professor Stiles' discussion is the use of the vermiform appendix as a permanent opening for the escape of gas. The appendicostomy should only be supplementary to some further operation on the megacolon.

THE USE OF SODIUM HYDROXID FOR STERILIZING INSTRUMENTS

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The profession is so busy along scientific lines that some practical points are often overlooked though their value may be unquestioned. Having for two years used sodium hydroxid ($NaOH$) in solution for sterilizing boilable instruments, with great satisfaction, I was somewhat surprised to find no mention thereof in books on operative surgery and gynecology. In looking over fifteen of the representative works, I find that in the majority it is advised to boil the instruments in "soda," or "washing soda," or "sodium carbonate" (Na_2CO_3), in strengths from .5 per cent. to 1.5 per cent. In one book sodium bicarbonate ($HNaCO_3$) is recommended. Instruments, especially if plated, boiled in such a solution come out covered with a white scum, are slippery and unless quickly dried, are liable to turn back, often defying diligent scouring. This is particularly true if there happen to be some blood thereon.

Sodium hydroxid, or hydrate, or caustic soda ($NoOH$), has none of these faults when used in a 0.25 per cent. solution. It comes in pearly sticks the caliber of a pencil and 4 to 6 inches long. A piece ¾-inch long (about 38 grains) to one quart of water gives the approximate strength. Inadvertently, I have left instruments standing in such a solution over night and have been agreeably surprised to find them neither black nor rusted in the morning. Fresh blood-stains disappear as if by magic when rinsed therein, and old dried spots are easily removed with a little rubbing. I have succeeded even in removing dried blood from rubber aprons with some of the solution left after sterilizing instruments, which had resisted previous scouring. It may be used hot and it is well known that plain hot water will clot and harden blood, making its removal the more difficult. It is my custom to have a basin of the solution handy while operating and by rinsing the instruments therein for a few seconds, they are kept always clean. While not able to prove this, I feel convinced that the instruments retain their plate longer and look brighter than before I used the hydrate.

Compared with sodium carbonate, the only disadvantage lies in the cost. The wholesale price of the hydrate is 35 to 40 cents per pound for the pure and about half that for the commercial product. The latter I have never used, so cannot say if it is equally serviceable. The chemically pure carbonate costs 25 cents, while the common grade, full of impurities and extraneous substances, can be obtained in the grocery stores for 3 to 5 cents per pound. The amount used at any one time, however, is so small that the expense can be of little moment to any one, except, perhaps, in large hospitals where sterilization goes on more or less constantly. I am quite sure that the surgeon giving the hydroxid a fair trial will not care to return to the use of the carbonate or bicarbonate. Owing to its high degree of deliquescence, sodium hydroxid must be kept in tightly stoppered glass bottles, preferably wide-mouthed.

I claim no originality for this discovery, for Mr. H. Leiter, the instrument manufacturer of Vienna, brought it to my attention.

Another little "stunt" worthy of mention is to rub lightly those metal instruments to be left in the case for some time with a stick of cocoa butter so that a thin film is deposited. This has the advantage over petrolatum, so generally recommended, that it is not disagreeably greasy to the touch and shelves, does not attract and hold dust, while it is equally effective in preventing rust.

450 Tremont Avenue East.

PERFORATION OF PREGNANT UTERUS IN AN UNSUCCESSFUL ATTEMPT TO PRODUCE ABORTION

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FREEPORT, ILL.

The question of the amount of trauma to which the pregnant uterus may be subjected without aborting is one which frequently comes up before us in many phases, particularly as regards the matter of operating during the term of pregnancy. I report the following case as being unique, so far as I can find, in the amount of damage done to the uterus without producing a miscarriage.

July 11, 1910, I was called by Dr. A. F. Kober, of McConnell, Ill., to see with him a patient who was apparently aborting. The patient was a woman of 35; was flowing to moderate extent; temperature, 101; pulse, about 120; and a very rigid abdomen over the uterus. She had been sick about two days before calling Dr. Kober, and delayed assistance as long as she could.

She gave a history of having attempted to bring on a miscarriage by the introduction of a twig of slippery elm. She stated that she had frequently used this means of inducing her menses when over time and had never had any previous trouble with it.

Dr. P. J. Burrell, of Winslow, Ill., was called in, and under anesthesia the patient was more thoroughly examined by introducing a sound and it was then discovered that the posterior wall of the uterus had been perforated through the cervix. On this finding, the patient was immediately hurried to the hospital and the abdomen opened. We found an infected tract extending from the perforation in the uterus along the upper portion of the sigmoid, and lying among the walls of the small intestine a number of small abscesses with a localized peritonitis about. The omentum lay partially in the perforation in the posterior wall of the uterus, whose edges were necrotic, and was about 4 cm. in diameter. The abscesses were evacuated and carefully drained, the omentum was amputated and removed, and also drainage established through the perforation and the cervix to the vagina. Nothing was done with the uterus, as regards emptying, more because of the condition of the patient than because it was considered the best policy to pursue, though it did not occur to us at the time that the ovum might still be present.

After a moderately severe convalescence the woman recovered and came to good health, believing of course, that the attempt at abortion had been successful.

The patient was dismissed from my mind and service, and it was with great surprise that on Jan. 1, 1911, she came in and I found her pregnant about seven months, as I diagnosed it at that time. March 28, Dr. Kober delivered this woman of an 8-pound child after a labor of moderate severity, with no untoward incidence, showing that the woman was probably about six weeks pregnant at the time she attempted to bring on her miscarriage.

INSTRUMENT FOR PASSING A NEEDLE WHERE SPACE IS LIMITED

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For the purpose of passing a needle and ligature where the space is limited, such as the back part of the mouth, the base of the bladder in suprapubic operations, or similar situations, I have devised the instrument shown below.

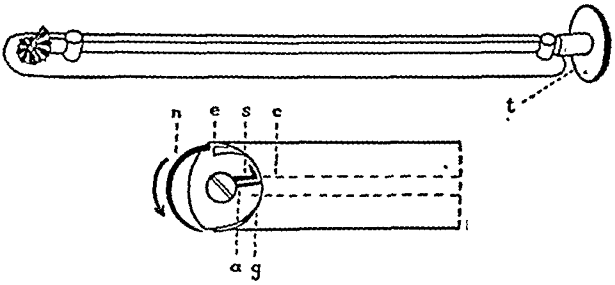

Diagram of instrument for passing a needle where space is limited.

A thread semicircular needle is lodged in a semicircular overhanging guide at the bottom of the instrument; it is propelled forward by a radius arm and held in place by a compression spring and discharged through an eye in the forward end of the guide. The radius arm is driven by a shaft connected with a right-angle cog movement on the back of the instrument. The cog movement is driven by a shaft connected with a milled head thumb-piece at the top of the instrument. The whole is mounted on a flat frame-piece and can be made any size to suit the necessities of the situation. In the diagram, *g* represents the guide; *a*. the driving arm; *s*, the spring; *c*, the eye in the forward end of the guide; *n*. the needle; *t*, the milled head thumb-piece; *c*, the shaft extending from the milled head to the cogs. The arrow to the left of the instrument shows the course the needle takes after leaving the instrument. The needle is engaged in the instrument by introducing the point into the eye of the guide, when the remainder falls readily into place with the butt end resting against the distal end of the driving-arm. Bringing the arm around 180 degrees, by turning the milled head, discharges the needle and causes it to pass through the remaining 180 degrees of the circle; it is now free from the instrument (*n*). If the driving arm is given a slight backward turn to prevent the thread from catching between the eye of the guide and the arm, the instrument is now withdrawn from the field of the operation, and the forward end of the needle is grasped with an ordinary needle-holder, and by a rotary motion in a manner to complete the circle. When the needle is placed in the holder, care should be taken to see that the thread is not entangled with the spring, otherwise there might be some difficulty in getting the ligature to slip through the eye of the guide, when the instrument is withdrawn from the wound. The direction kept by the needle is on a plane with the instrument, and it passes through the tissue with much ease. Truax, Greene & Co., of Chicago, have made this instrument for me in a neat and well proportioned manner.

MICROSCOPIC DIAGNOSIS OF RABIES

A MODIFICATION OF VAN GIESON'S METHOD FOR STAINING THE CHARACTERISTIC NERVE CELL INCLUSIONS

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RICHMOND, VA.

For several years, in the laboratory of the Pasteur Institute of Virginia, a modification of Van Gieson's well-known method of staining for the diagnosis of rabies has been practiced. It consists essentially in the use of acetone as a solvent for rosanilin in the place of alcohol. When the solution of rosanilin in acetone is diluted with water, the stain yields itself so readily to the affinity of the cell inclusions that heat is unnecessary, as when alcohol is employed, and the inclusions are quickly tinted a brilliant rose-red color.

Furthermore, the stain may be very quickly prepared, should no fresh solution be at hand, rosanilin being extremely soluble in acetone. Nor is it necessary to wait till the solution becomes saturated, though it is preferable to keep such a solution on hand if the stain is used often. The concentrated solution is more stable than that in alcohol, and hence need not be freshly prepared so often. In our laboratory it is preserved in the ice-box, and keeps well in hot weather for a month or longer.

As in Van Gieson's original method, alcohol is used as a fixing agent, and methylene-blue for counterstaining. The modification makes no difference in the results obtained, a sharp contrast being presented between the rose-red cell inclusions, the orange-red blood-cells, etc. It is believed that the readiness of the acetone solution to give up the stain, enables one to detect the inclusions more certainly in brains of animals long dead, when post-mortem or other changes render them more difficult to color. This conclusion is based on practical comparative tests of the two methods.

The following technic is commonly employed in our laboratory:

Smears containing pyramidal cells of the hippocampus, or Purkinje cells of the cerebellum, are prepared in the usual manner, allowed to dry, and fixed for two minutes in ethyl or methyl alcohol. They are then dried with blotting-paper and stained.

Two or three drops of a saturated solution of rosanilin in acetone (U. S. P.) are added to 10 c.c. of water, which is agitated with the pipette, and soon becomes a brilliant rose-red color. Then two drops of a half-saturated aqueous solution of methylene-blue are added, and the stain is applied to the smears.

Staining is completed in one or two minutes, without heat. The slide is then washed under the tap, dried, and examined.

Should a weaker than saturated solution of rosanilin be employed, it is only necessary to add more of it, drop by drop, to the water, till the usual brilliant rose-red tint is obtained, when the result will be found about the same as that obtained with the saturated solution.

AQUEOUS SOLUTION OF IODIN IN THE TREATMENT OF ULCER OF THE CORNEA

A PRELIMINARY NOTE

E. L. MEIERHOF, M.D.
NEW YORK

At the New York Eye and Ear Infirmary we have for a number of years been using, as a routine measure in the treatment of ulcers of the cornea, a solution of mercury bichlorid with a fair amount of success, the patient instilling three to five drops three times daily, and in addition using an ointment of mercury bichlorid once or twice daily. Occasionally a 20 or 25 per cent. solution of argyrol is used in the early stages of the ulcer, especially where the secretion has a tendency to be mucopurulent. In the Morax-Axenfeld infection, with an erosion of the cornea, zinc sulphate is employed. Occasionally phenol (carbolic acid), or other forms of cauterizing, are employed when the ulcer has a tendency to be deep or is spreading. I have also followed practically the same routine in my private practice, but have not been entirely satisfied with it, in spite of additional measures, such as warm bathing, dionin, atropin, etc., except in cases in which syphilis was the principal factor.

Some six months ago, however, I commenced using a watery solution of iodin in these cases, being influenced to do so by the wonderful effect of tincture of iodin in sterilizing raw catgut. The use of iodin in infected lesions of the cornea is not new, but the method heretofore employed was not satisfactory. It was generally used by occasionally touching an ulcer with tincture of iodin, which is extremely painful unless cocain is first employed; and this is sometimes undesirable on account of the desiccating influence of cocain on the corneal epithelium, diminishing the resistance of the corneal tissue to further infection. (Holocain, however, does not have this influence.) I had already used iodin locally in other conditions and obtained very satisfactory results.

The patients suffering from ulcer of the cornea were treated with a solution of iodin 1 grain, sodium iodid 3 grains, and 1 ounce of water. Three drops of this solution were ordered to be instilled into the eye, three or four times daily. No other treatment was used. The cases treated were largely superficial erosions; five of them were ulcers in connection with trachomatous pannus, and several had been previously treated. The instillation of the above mentioned solution of iodin is not very painful, and the duration of the pain is not more than ten or fifteen minutes. Occasionally the conjunctiva becomes congested from its use, but this disappears when the application is stopped. After twenty-four or forty-eight hours of this treatment, the patient will tell you that his eye is less painful and more tolerant to light, and the headache, so common in these cases, diminishes rapidly. The solution can be used for several weeks without causing any further annoyance, even if the ulcer is healed. Altogether, I have treated fifteen patients by this method, and I have been so encouraged by the results that without waiting for the accumulation of further experience I take the liberty of offering it as an addition of great utility to our ocular therapeutics.

1140 Madison Avenue.

Special Article

NINTH ANNUAL SUMMARY OF FOURTH OF JULY INJURIES

For the ninth consecutive year THE JOURNAL this week presents statistics of injuries received during the celebration of the Fourth of July, with particular reference to tetanus resulting from these injuries. Special effort has been made to secure reliable data and all serious cases have been carefully investigated, so that, so far as the statistics go, dependence may be placed on them. In addition to the usual reports, blanks were sent to a large number of hospitals and thousands of letters were sent to health officers and physicians in all parts of the country asking for reports. In fact, unusual effort was made this year to obtain full and complete returns.

In previous years from the hospitals long lists of injured were received, but this year a large majority reported none injured and those which did report cases had comparatively small lists. The reduction in the number of casualties this year was very marked. Our thanks are due to health officers, hospital superintendents, physicians and others for the careful reports which have made these statistics practically complete and the figures reliable. The data are presented in the same manner as heretofore so that comparisons with the figures of previous years may be made.

SANITY VS. GUNPOWDER —By De Mar
[Courtesy of *Philadelphia Record.*]

FEWER CASES OF TETANUS THIS YEAR

There were only eighteen cases of tetanus this year, fifty-four less than last year, and the lowest number reported during the nine years THE JOURNAL has been gathering these statistics. Last year there were seventy-two cases, and 150 in 1909. It is a significant fact that the number of blank cartridge wounds shows a correspondingly large decrease, from 450 last year to 169 this year (Table 6). The most common cause of the wound is the blank cartridge, and the most common site is the hand. Of the twenty lockjaw patients all but one were males, and all but three were under 18 years of age. The youngest was 4 years old, the oldest was 40, and the average age this year was 14 years.

The duration given in the table is the number of days between the time of the injury and death or recovery. Figures are also given (in parentheses) showing the number of days following the injury before active symptoms appeared. This was five to fifteen days, the average for fatal cases this year being about eight days. A longer incubation period probably indicates a less virulent infection and, therefore, a better chance for recovery under treatment. Following the appearance of the symptoms, death resulted in from two to three days; the average of all cases this year, for which this information was given, was two and one-third days. In only one case was the entire time between inoculation and death less than five days, the duration of this case being four days. The average duration for all fatal cases reported was about nine days.

USE OF ANTITOXIN

So far as reports were received tetanus antitoxin was employed in seven of the eighteen cases reported this year, but in no instance, according to the reports, was it employed until after the active symptoms had set in. This is unfortunate, as tetanus antitoxin is so valuable as a prophylactic that very few cases have ever been reported in which active symptoms began after its administration. The list of tetanus cases is given in Table 1.

DISTRIBUTION OF TETANUS

Tetanus occurred in ten states this year, seven less than last year, fourteen less than in 1909, and nine less than in 1908. Three cases each were reported for Illinois and Ohio, and two each for California, Michigan, New Jersey and Wisconsin. Four states, Iowa, Massachusetts, New York and Pennsylvania had one case each. The greatest reduction below last year's record was in Pennsylvania which had 10 cases less than last year followed by Michigan with nine cases less than last year.. Illinois had eight cases less and New Jersey seven less. Table 2 allows comparison of the number of cases in each state for the nine years.

THE DEADLY BLANK CARTRIDGE

Blank cartridges continue to be responsible for the great majority of tetanus cases, 15 or 83 per cent. this year being due to that cause as compared with 88.9 per cent. last year, and 86.5 per cent. in 1909. With the full knowledge of the awfulness of the deaths caused by blank cartridge wounds it is certainly inexcusable that the use of these instruments of torture is not absolutely prohibited. Two cases of tetanus this year were due to injuries by fire-crackers and one by a bomb. The causes of the tetanus cases from Fourth of July injuries for each of the past nine years are shown in Table 3.

TABLE 1.—CASES OF TETANUS

Name.	Sex.	Age.	Cause of Wound.	Site of Wound.	Duration in Days*	Day Antitoxin was used.	Termination.
			CALIFORNIA				
Domato	M.	14	Bl. ctg.	Hand	8	..	D.
O'Brien	M.	12	Bl. ctg.	Hand	(8) 10	8	D.
			ILLINOIS				
[illegible]	M.	14	Bl. ctg.	Hand	7	No	D.
		14	Bl. ctg.	Hand	(7) 39	8	R.
		9	Bl. ctg.	Hand	(5) 8	5	D.
			IOWA				
Porter	M.	15	Bl. ctg.	Leg	7	..	D.
			MASSACHUSETTS				
Alczands	M.	18	Bl. ctg.	Hand	12	..	...
			MICHIGAN				
McCracken	M.	4	Bomb		(10)	..	...
Perkins	M.	8	Bl. ctg.	Hand	(9) 11	9	D.
			NEW JERSEY				
Morris	M.	11	Bl. ctg.	Hand	(6) 8	..	D.
Murphy	M.	13	Bl. ctg.	Hand	(10)	..	...
			NEW YORK				
Anesi	M.	11	Bl. ctg.	Hand	(6) 8	6	D.
			OHIO				
Bridwell	M.	8	Bl. ctg.	Hand	..	..	...
Knowlton	M.	15	Bl. ctg.	Hand	11	..	...
Malone	M.	40	Firecracker	Hand	4	..	D.
			PHILADELPHIA				
Strain	M.	24	Bl. ctg.	Hand	(9)	9	R.
			WISCONSIN				
Churchill	M.	10	Firecracker	Hand	(7)	..	...
Schmidt	M.	12	Bl. ctg.	Hand	(15)18	..	D.

* Figures in parentheses show incubation period.

TABLE 2.—TETANUS CASES BY STATES
Comparison with Previous Years

	1903	1904	1905	1906	1907	1908	1909	1910	1911
Alabama	..	..	1	..	..	..	..	..	..
Arizona	..	..	..	..	1	..	..	..	..
California	2	4	4	3	1	..	2	1	2
Colorado	4	..	1	..	..	..	..	..	..
Connecticut	3	..	3	..	4	1	..	..	..
Delaware	..	..	1	1	1	..	2	..	..
Dist. of Columbia	1	..	..	..	..	..	..	..	..
Florida	..	..	..	..	..	..	1	..	..
Georgia	..	..	..	..	1	..	..	..	..
Idaho	1	..	..	..	..	..	1	..	..
Illinois	49	15	20	16	12	12	20	10	3
Indiana	11	6	3	8	2	..	9	6	..
Iowa	14	2	3	4	4	1	1	1	1
Kansas	11	1	..	..	2	1	6	..	..
Kentucky	4	2	..	1	..	1	1	..	..
Louisiana	..	..	..	..	..	..	..	..	..
Maine	2	4	1	1	..	1	1	1	..
Maryland	1	..	1	1	..	..	2	2	..
Massachusetts	16	5	7	3	2	5	8	..	1
Michigan	29	7	9	4	4	2	11	11	2
Minnesota	15	2	2	2	2	..	..	..	..
Missouri	29	1	3	3	1	5	8	2	..
Montana	2	1	1	..	1	..	3	2	..
Nebraska	4	3	3	1	..	1	3	1	..
New Hampshire	2	..	..	1	..	..	1	..	..
New Jersey	8	9	3	10	8	10	19	9	2
New York	36	9	6	8	4	9	11	7	1
North Dakota	..	..	..	..	..	..	..	..	..
Ohio	67	9	5	7	6	7	12	3	3
Oklahoma	1	..	1	1	..	1	..	1	..
Oregon	2	..	..	1	1	1	..	..	..
Pennsylvania	82	17	12	5	7	7	10	11	1
Rhode Island	3	..	..	1	..	..	..	..	..
South Carolina	..	..	..	..	..	..	..	..	..
South Dakota	..	..	..	..	..	1	1	..	..
Tennessee	..	..	..	..	..	..	..	..	..
Texas	..	..	..	..	2	..	..	..	..
Utah	..	1	1	..	..	..	..	1	..
Vermont	3	2	..	2	2	..	..	..	..
Washington	2	2	..	..	2	4	4	1	..
West Virginia	3	..	..	2	..	1	4	..	..
Wisconsin	10	4	13	2	3	5	9	3	2
Wyoming	..	..	..	1	..	..	..	..	..
Total	415	105	101	89	73	76	150	72	18
No. states having cases	30	21	23	25	23	20	25	15	10

THE MORTALITY PERCENT.

Of the eighteen cases of tetanus from Fourth of July injuries this year ten, or 55 per cent., ended fatally as compared with 93 per cent. last year, 84 per cent. in 1909, and 72 per cent. in 1908.

TETANUS FROM INJURIES NOT CAUSED BY FIREWORKS

Besides the cases of lockjaw due directly to the use of fireworks, it is interesting to note also those occurring during the Fourth of July season which were due to penetrating wounds from other causes, such as nails or splinters, to crushing injuries, etc. There was likewise a marked reduction in these cases, only twenty-nine being reported during the Fourth of July season this year, or less than half the number of last year, when forty-seven were reported. Is this reduction due to the prophylactic use of tetanus antitoxin? The cases of tetanus due to other than Fourth of July injuries are shown by states in Table 4. A comparison of this table with Table 2 is interesting.

TABLE 3.—CAUSES OF TETANUS CASES

Year.	Blank Cartridge.	Giant Cracker.	Cannon.	Firearms.	Powder, etc.	Total.
1903	363	17	5	3	27	415
1904	74	18	5	1	7	405
1905	65	17	4	5	13	104
1906	54	17	1	7	10	89
1907	52	8	6	4	3	73
1908	58	5	4	3	6	150
1909	130	9	1	4	6	150
1910	64	2	..	5	1	72
1911	.15	1	1	..	1	18

TABLE 4.—CASES OF TETANUS FROM OTHER CAUSES

	1908	1909	1910	1911		1908	1909	1910	1911
Alabama	....	....	1	1	Nevada	....	....	....	....
Arizona	....	....	....	....	New Hampshire	....	....	....	....
Arkansas	2	....	....	....	New Jersey	7	8	8	1
California	4	4	1	2	New Mexico	....	1	....	....
Colorado	3	....	....	1	New York	17	12	4	2
Connecticut	2	2	...	...	North Carolina	1	....	....	....
Delaware	2	1	...	...	North Dakota	1	....	....	....
Dist. of Colum.	....	....	....	...	Ohio	23	13	2	....
Florida	2	....	....	....	Oklahoma	....	....	....	....
Georgia	....	1	....	....	Oregon	....	1	3	....
Idaho	....	....	....	....	Pennsylvania	21	21	8	6
Illinois	17	18	7	6	Rhode Island				
Indiana	6	4	1	2	South				
Iowa	2	7	3	1	South				
Kansas	4	....	1	....	Tennessee	3	....	....	....
Kentucky	5	5	....	1	Texas	4	1	1	....
Louisiana	1	....	....	1	Utah	....	....	....	....
Maine	....	....	....	....	Vermont	....	....	1	....
Maryland	3	....	2	1	Virginia	4	1	....	1
Massachusetts	3	5	1	....	Washington	2	....	....	....
Michigan	4	5	1	....	West Virginia	....	1	....	....
Minnesota	4	2	....	....	Wisconsin	5	4	1	....
Mississippi	....	....	....	....	Wyoming	....	....	....	....
Missouri	12	5	1	2					
Montana	....	....	....	....	Total	166	28	47	29
Nebraska	..	3	1	1	States reporting cases	29	23	18	15

DEATHS AND INJURIES NOT CAUSED BY TETANUS

Beside the ten deaths due to tetanus, forty-seven persons were killed by various forms of fireworks, making a total of fifty-seven deaths, seventy-four less than last year, and 158 less than in 1909. This is the lowest number of deaths from such causes during the nine years covered by THE JOURNAL'S statistics, and shows a very decided improvement over previous years. This year eleven people were killed outright by firearms, nine by explosions of powder, bombs or torpedoes, five by cannon, two by giant firecrackers and eight by various causes, as blood poisoning, explosions of chemicals, etc. The largest number of deaths due to any one cause was twelve, mostly little girls, who were burned to death by fire from fireworks, in several instances from the so-called "harmless" varieties, including very small firecrackers and sparklers. All accidents not due directly to the discharge or handling of fireworks or other means of noise production and display on or about the Fourth of July have been omitted. Table 5 shows a comparison of the causes of death aside from tetanus for the past seven years.

TABLE 5.—CAUSES OF DEATHS NOT DUE TO TETANUS

Year.	Gunshot.	Fire from Fireworks.	Powder, Torpedoes, Etc.	Giant Crackers.	Cannon.	Other Causes.	Total
1905	37	23	6	5	7	17	95
1906	38	18	18	3	3	3	83
1907	20	31	13	13	3	22	102
1908	30	22	19	23	7	7	108
1909	17	37	16	7	7	6	90
1910	19	26	11	2	3	3	64
1911	11	12	9	2	5	8	47

DISTRIBUTION OF INJURIES

In Table 6 will be found a summary of all injuries including tetanus and of all causes arranged by states. Beneath the totals at the bottom are given, for comparison, the totals for the eight previous years. The grand totals for the nine years are also given. Table 7 allows of comparisons of the total deaths and accidents for nine years. The decrease in the number of injuries is most remarkable this year and unquestionably is the result of the efforts to secure more intelligent methods of celebration. This is evident from the fact that the most marked decreases are in the states where the agitation for restrictive measures was strongest. Massachusetts this year had less than one-half of the injuries it had last year and only one-sixteenth of what it had in 1909. Connecticut reduced its total to less than one-fifth and Minnesota and New Jersey reduced their totals to one-fourth what they were in 1909. Other states showing marked reductions are Indiana, Iowa and Michigan.

TABLE 6.—SUMMARY BY STATES OF JULY FOURTH CASUALTIES

Number.	States.	Deaths.			Injuries.						Total Persons Dead or Injured.	Causes of Tetanus Cases.		Causes of all Cases Aside from Tetanus Cases.					Number.
		From Tetanus.	From Other Causes.	Total.	Loss of Sight.	Loss of One Eye.	Loss of Legs, Arms or Hands.	Loss of Fingers, One or More.	Other Injuries.	Total Non-Fatal Injuries.		Blank Cartridge.	All Other Causes.	Blank Cartridge.	Fire Crackers.	Cannon.	Firearms.	Powder and Fireworks.	
1	Alabama							1	2	3	3							3	1
2	Arizona								2	2	2							2	2
3	Arkansas							1		1	1							1	3
4	California	2	2	4	1	1		2	35	39	43	2		8	5	4	5	19	4
5	Colorado							1	5	6	6				2			4	5
6	Connecticut		1	1		1	1	1	11	14	15			3	6		5	1	6
7	Delaware								3	3	3				3				7
8	District of Columbia																		8
9	Florida																		9
10	Georgia								10	10	10							10	10
11	Idaho								1	1	1							1	11
12	Illinois	2	10	12		1	4	11	190	206	218	3		45	50	14	36	70	12
13	Indiana		2	2		1	3		47	51	53			7	18	7	5	16	13
14	Iowa	1	4	5	1			2	46	49	54	1		5	20	4	4	11	14
15	Kansas		2	2	1			1	21	23	25			5	4	1	4	11	15
16	Kentucky		1	1					5	5	6			1	1	3		1	16
17	Louisiana								2	2	2				1			1	17
18	Maine		1	1			1		2	3	4				2	1		1	18
19	Maryland		1	1			1	1	10	12	13			1	2	4	2	4	19
20	Massachusetts		2	2			3	1	21	25	27	1			6	2	1	17	20
21	Michigan	1	2	3	1	4	3	4	51	66	69	1	1	3	12	7	7	38	21
22	Minnesota					1		2	14	17	17			1	4	3	2	7	22
23	Mississippi								1	1	1				1				23
24	Missouri					2	1	4	53	60	60			8	14	5	5	28	24
25	Montana																		25
26	Nebraska					3		1	13	17	17				8	1		8	26
27	Nevada																		27
28	New Hampshire		1	1					1	1	2					2			28
29	New Jersey	1	2	3			1	3	36	40	43	2		4	9	7	9	12	29
30	New Mexico																		30
31	New York	1	5	6	1	3	3	11	213	231	237	1		40	60	15	58	63	31
32	North Carolina							1	4	5	5					4		1	32
33	North Dakota								1	1	1				1				33
34	Ohio	1		1		2		5	97	104	105	2	1	7	44	8	9	34	34
35	Oklahoma								9	9	9			3	2			4	35
36	Oregon								3	3	3				2			1	36
37	Pennsylvania		4	4	1	7	8	21	401	438	442	1		21	140	18	27	235	37
38	Rhode Island		1	1					10	10	11			2	4		1	4	38
39	South Carolina		1	1							1							1	39
40	South Dakota								2	2	2				1			1	40
41	Tennessee							1	2	3	3			1			1	1	41
42	Texas																		42
43	Utah								2	2	2				1			1	43
44	Vermont							2	2	4	4			1	2	1			44
45	Virginia							2	1	3	3				2			1	45
46	Washington		1	1	1			1	19	21	22			2	15			5	46
47	West Virginia								2	2	2				2				47
48	Wisconsin	1	4	5	1		1	3	42	47	52	1	1	2	29	3	2	14	48
49	Wyoming								4	4	4				2		1	1	49
	1911 totals	10	47	57	8	26	30	83	1,399	1,546	1,603	15	3	170	484	114	184	633	
	1910 totals	67	64	131	7	33	26	114	2,612	2,792	2,923	64	8	386	1,050	212	229	974	
	1909 totals	125	90	215	16	36	41	176	4,823	5,092	5,307	130	20	1,095	1,614	427	341	1,680	
	1908 totals	55	108	163	11	93	57	184	5,115	5,460	5,623	58	18	816	1,793	399	481	2,058	
	1907 totals	62	102	164	12	75	57	237	3,868	4,249	4,413	52	21	554	1,489	267	502	1,528	
	1906 totals	75	83	158	22	72	56	227	4,931	5,308	5,466	54	35	925	1,690	408	532	1,822	
	1905 totals	87	95	182	25	106	80	221	4,562	4,094	5,176	65	39	744	1,775	474	404	1,675	
	1904 totals	91	60	466	10	75	54	208	3,637	3,986	4,169	74	25	831	1,268	508	406	1,057	
	1903 totals	406	60	466	10	75	54	174	3,670	3,983	4,449	363	29	1,309	1,152	397	236	963	
	Total for nine years	978	741	1,719	130	577	462	1,624	34,617	37,410	39,129	875	198	6,830	12,315	3,206	3,315	12,390	

Pennsylvania has had the largest number each year since 1904, having 442 casualties this year, followed by New York with 237, and Illinois with 217. Note that two years ago the same three states had respectively 986, 897 and 546 injuries. Altogether there were 1,603 injuries this year, a little more than half of last year's record and less than one-third of the totals for 1909.

NATURE OF NON-FATAL INJURIES

There were 1,546 non-fatal injuries this year, a little more than half (55 per cent.) of the total reported last year. Eight persons were totally blinded this year, twenty-six lost one eye each, thirty lost legs, arms or hands, and eighty-three lost one or more fingers. Considering the marked reduction in the total number injured it is surprising to note that the totals of these more severe injuries are about the same as reported last year. The giant firecracker continues to hold the first place as a cause of mutilating wounds and is responsible for most of the losses of eye, hands and fingers. This year 483 injuries including two deaths and two cases of lockjaw were due to the giant firecracker. Firearms caused 184 accidents this year including eleven killed. Of the total number thus injured, eighty were struck by stray bullets from the reckless use of firearms by others, and six deaths resulted. The use of the toy cannon caused 114 injuries including five killed, but this year caused no cases of tetanus. In the nine years a total of 39,129 people—the equivalent of over thirty-nine regiments—were killed or injured in the celebration of the Fourth of July!

TABLE 7.—TOTAL DEATHS AND ACCIDENTS BY STATES DURING NINE YEARS

	1903	1904	1905	1906	1907	1908	1909	1910	1911
Alabama	2	7	1	2	1	1	1	3	3
Arizona	1	.....	4	5	2	5	3	.....	2
Arkansas	.....	.....	3	4	.....	5	1	4	1
California	100	138	142	96	121	136	89	63	43
Colorado	39	44	26	23	25	13	18	19	6
Connecticut	162	133	132	189	63	105	86	78	15
Delaware	1	5	14	8	16	12	13	8	3
Dist. Columbia	2	10	24	5	12	21	.....	.....	.....
Florida	1	2	2	.....	.....	.....	1	4	.....
Georgia	.....	.....	.....	4	2	4	.....	5	10
Idaho	4	4	3	3	4	4	2	3	1
Illinois	366	423	542	598	468	558	546	285	218
Indiana	160	211	217	250	.....	255	164	167	53
Iowa	168	137	328	255	231	174	91	141	54
Kansas	63	88	56	61	64	72	86	50	25
Kentucky	30	72	17	21	18	33	17	26	6
Louisiana	.....	2	3	7	8	4	.....	4	2
Maine	31	32	29	15	11	16	22	7	4
Maryland	21	22	13	10	23	21	10	8	13
Massachusetts	637	193	467	329	168	430	430	63	27
Michigan	144	157	288	193	163	203	177	143	69
Minnesota	157	102	174	95	95	65	69	64	17
Mississippi	.....	.....	.....	2	2	1	.....	.....	1
Missouri	147	84	218	325	299	375	352	112	60
Montana	5	17	40	3	6	11	9	10	.....
Nebraska	46	63	43	47	58	46	42	36	17
Nevada	.....	1	2	.....	1	4	.....	1	.....
New Hampshire	37	23	9	29	13	13	23	10	2
New Jersey	226	204	350	398	402	472	488	167	43
New Mexico	.....	4	5	1	6	.....	1	3	.....
New York	522	549	566	681	752	647	897	327	237
North Carolina	.....	.....	1	1	.....	.....	.....	1	5
North Dakota	10	8	29	11	8	13	4	13	1
Ohio	443	327	329	490	375	513	323	166	105
Oklahoma	1	3	7	14	104	9	12	11	9
Oregon	16	13	9	11	5	9	21	19	3
Pennsylvania	553	744	721	969	491	987	986	623	442
Rhode Island	64	30	11	21	39	39	42	19	11
South Carolina	.....	.....	.....	1	.....	.....	4	.....	1
South Dakota	4	10	15	5	8	10	9	4	2
Tennessee	4	1	5	6	4	5	4	10	3
Texas	2	2	4	11	7	11	4	2	.....
Utah	23	22	25	18	30	12	18	8	2
Vermont	45	14	10	14	18	19	12	4	4
[illegible]		11	5	8	.....	5	4	.....	3
[illegible]		25	15	25	23	38	32	37	22
[illegible]		16	34	64	27	29	35	20	2
Wisconsin	190	215	230	155	150	187	157	171	52
Wyoming	1	2	8	3	.....	1	1	4	4
Totals	4449	4169	5176	5466	4413	5623	5307	2923	1603

TABLE 8.—NUMBER REPORTED KILLED AND INJURED IN THE LARGER CITIES

City.	Population Census of 1910.	1907		1908		1909		1910		1911	
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
New York City	4,776,883	22	422	11	316	7	559	6	179	3	91
Chicago	2,185,283	16	151	12	202	...	118	4	62	2	53
Philadelphia	1,549,008	7	248	6	426	9	508	4	405	...	294
St. Louis	687,029	3	189	4	229	4	163	...	44	...	38
Boston	670,585	3	59	6	190	5	167	...	35	...	3
Cleveland	560,663	3	63	12	93	...	4	...	1	...	5
Baltimore	558,485	...	5	1	10	...	5	...	6	...	10
Pittsburgh	533,905	10	88	...	30	5	48	6	26	1	25
Detroit	465,766	2	46	...	10	2	46	1	17	...	18
Buffalo	423,715	...	18	3	11	...	33	1	13	...	16
San Francisco	416,912	...	.....	...	11	...	12	...	9	1	8
Milwaukee	373,857	2	93	...	70	...	78	3	112	1	19
Cincinnati	364,463	2	89	1	112	3	86	3	49	1	4
Newark, N. J.	347,469	1	129	2	81	1	150	1	15	...	.....
New Orleans, La.	339,075	...	8	...	4	...	.....	...	3	...	2
Washington, D. C.	331,069	...	12	...	21	...	.....	...	.....	...	.....
Los Angeles, Cal.	319,198	...	35	...	40	...	26	...	.....	...	4
Minneapolis, Minn.	301,408	...	13	...	10	1	24	...	20	...	.....
Jersey City, N. J.	267,779	...	31	5	34	1	14	1	44	...	14
Kansas City, Mo.	248,331	1	46	...	55	4	67	1	25	...	4
Seattle, Wash.	237,194	1	3	...	11	3	10	...	7	...	.....
Indianapolis, Ind.	233,650	1	31	1	14	1	35	...	24	...	5
Providence, R. I.	224,326	...	20	1	21	...	13	...	10	1	9
Louisville, Ky.	223,928	...	13	...	10	1	10	1	13	...	3
Rochester, N. Y.	218,149	...	12	...	10	...	5	...	10	...	4
St. Paul, Minn.	214,744	...	20	...	13	...	18	...	12	...	10
Denver, Colo.	213,381	...	8	...	13	...	12	1	6	...	2
Portland, Ore.	207,214	...	2	...	3	...	[illegible]	...	[illegible]	...	1
Columbus, Ohio	181,548	5	36	...	5	1	[illegible]	...	.....	...	1
Toledo, Ohio	168,497	1	5	...	8	2	[illegible]	1	2	...	2
Atlanta, Ga.	154,839	1	4	...	3	...	.....	...	5	...	10
Oakland, Cal.	150,174	...	9	...	.....	...	8	...	9	...	1
Worcester, Mass.	145,986	1	6	2	20	1	42	...	6	...	1
Syracuse, N. Y.	137,249	...	20	...	14	...	13	...	6	...	1
New Haven, Conn.	133,605	...	2	...	.....	...	15	...	.....	...	1
Birmingham, Ala.	132,683	...	.....	...	.....	...	.....	...	.....	...	3
Memphis, Tenn.	131,105	...	1	...	3	...	4	...	2	...	.....
Scranton, Pa.	129,867	...	5	1	17	1	29	...	6	...	10
Richmond, Va.	127,628	...	.....	...	.....	1	1	...	.....	...	.....
Paterson, N. J.	125,600	1	29	2	31	1	45	1	14	...	5
Omaha, Neb.	124,069	...	25	...	10	1	17	...	17	...	7
Fall River, Mass.	119,295	...	.....	...	12	...	19	...	1	...	.....
Dayton, Ohio	116,577	...	11	...	14	...	4	...	2	...	4
Grand Rapids, Mich.	112,571	...	20	1	30	...	3	...	17	1	6
[illegible]	110,364	...	2	...	.....	...	.....	...	8	...	2
[illegible]	106,294	...	23	...	.....	...	18	...	.....	1	3
[illegible]	104,839	...	.....	...	17	...	.....	...	.....	...	4
[illegible]	104,402	...	.....	...	.....	...	.....	...	.....	...	7
Bridgeport, Conn.	102,054	...	1	...	27	...	21	...	4	...	4
Albany, N. Y.	100,253	1	24	...	37	...	31	...	11	1	5
Hartford, Conn.	98,915	...	18	...	18	...	11	...	14	...	1
Trenton, N. J.	98,815	...	38	1	17	1	59	...	.....	...	1
New Bedford, Mass.	96,652	...	.....	...	3	...	.....	...	.....	...	.....
Reading, Pa.	96,071	...	17	...	13	...	17	1	3	...	4
San Antonio, Texas	96,614	...	.....	...	1	...	.....	...	.....	...	.....
Camden, N. J.	94,538	...	16	...	29	4	14	...	6	...	.....
Salt Lake City	92,777	...	15	...	6	2	14	1	4	...	.....
Lynn, Mass.	89,335	...	3	...	11	3	16	...	4	...	.....
Springfield, Mass.	88,926	...	21	1	36	1	9	1	2	...	4
Wilmington, Del.	87,411	1	14	...	13	3	9	...	6	...	3
Des Moines, Iowa	86,368	1	31	...	41	...	13	...	23	...	12
Lawrence, Mass.	85,892	...	11	1	.....	5	22	...	.....	...	.....
Tacoma, Wash.	82,972	2	4	1	3	...	3	...	2	...	.....
Kansas City, Kan.	82,331	1	10	...	17	...	33	...	14	1	5
Yonkers, N. Y.	79,803	...	32	...	5	...	8	...	.....	...	1
Houston, Texas	78,800	...	.....	...	1	...	1	...	.....	...	.....
Duluth, Minn.	78,466	...	12	...	9	2	10	...	3	...	1
St. Joseph, Mo.	77,403	1	23	1	41	1	21	...	11	...	1
Somerville, Mass.	77,236	...	.....	...	.....	...	1	...	2	...	.....
Troy, N. Y.	76,813	...	.....	2	18	...	16	1	8	...	2
Utica, N. Y.	74,419	...	18	...	10	...	5	...	1	...	.....
Waterbury, Conn.	73,141	2	8	...	11	...	5	...	15	1	.....
Schenectady, N. Y.	72,826	...	4	...	20	...	8	1	13	...	7
Hoboken, N. J.	70,324	...	1	1	24	...	7	...	4	...	.....
Elizabeth, N. J.	73,409	...	43	...	72	...	37	...	15	...	1
Manchester, N. H.	70,063	...	3	...	1	1	5	...	.....	...	.....
Evansville, Ind.	69,647	...	5	...	12	...	6	...	7	...	1
Norfolk, Va.	67,452	...	.....	...	.....	...	.....	...	.....	...	.....
Wilkes-Barre, Pa.	67,105	1	.....	3	38	1	15	2	8	...	2
Peoria, Ill.	66,950	...	8	...	27	1	22	1	17	...	.....
Erie, Pa.	66,525	...	.....	...	1	...	4	...	2	...	3
Savannah, Ga.	65,064	...	.....	...	.....	...	.....	...	.....	...	.....
Harrisburg, Pa.	64,186	...	23	1	71	...	22	...	3	...	1
Portland, Maine	58,571	1	2	...	.....	...	2	...	.....	1	2
Totals		94	2,459	82	2,860	80	2,935	43	1,455	16	771
Totals elsewhere		70	1,791	80	2,600	135	2,156	88	1,337	41	775
Grand total		164	3,249	162	5,460	215	5,091	131	2,792	57	1,546

TOTALS IN CHIEF CITIES

Table 8 shows the number reported killed and injured in our largest cities during each of the past five years. The population figures are from the United States Census of 1910. This table is of particular interest since by it the results of the adoption and enforcement of prohibitive or restrictive ordinances can be seen. Sometimes, however, although very small numbers of injuries are reported, more deaths occurred than in other cities having more injuries. New York City reported three deaths, the largest number this year, Chicago reported two, and eleven other cities reported one each, making a total of sixteen deaths in our eighty-four largest cities as compared with forty-three killed last year, eighty in 1909, eighty-three in 1908 and ninety-four in 1907. Although Philadelphia is the one large city having more than 100 injured this year, it is the only time in the last five years that no deaths are reported. Only 771 non-fatal injuries were reported for these large cities this year as compared with 1,455 last year, 2,935 in 1909 and 2,860 in 1908. A marked reduction is seen in the records of practically all these cities, even Philadelphia having reduced its total by one-fourth.

Of these eighty-four cities, sixty-three have a record of five or less injured this year as compared with thirty-seven last year, twenty-six in 1909 and twenty-three in 1908. There were twenty-four of these cities having a clean record this year as compared with eighteen last-year and only ten in 1908. On the other hand, only one city this year had a hundred injured, as compared with three last year, six in 1909 and six in 1908. Probably the most remarkable reductions in the last few years have been at Milwaukee, which records a fall of from 112 in 1910, to nineteen in 1911; at Boston, which records a fall from 190 in 1908, to only three in 1911, and at Newark, N. J., a fall of from 150 in 1909, to none in 1911.

WHERE THE RESPONSIBILITY RESTS

The responsibility for the vast majority of Fourth of July injuries clearly rests with city governments, since the employment of death-dealing methods of celebration is subject to their regulation. It is, therefore up to the city governments to decide whether or not the maiming of thousands, the agonizing deaths from lockjaw and the burning to death of little children by fire from fireworks are to be continued. Prohibitory ordinances are most effective and permanent, as shown by the results in Baltimore, Washington, Cleveland, Trenton and other cities, and even restrictive ordinances, if enforced, are quite effective, as shown by the results in New York, Boston, Chicago, Toledo and elsewhere. But the enforcement of restrictive measures is more difficult and requires more constant vigilance on the part of the police. By the sound, it is difficult to know whether an explosion is due to a firecracker 3 inches long or to one 5 inches long or whether it is due to some other forbidden form of fireworks, while under a prohibitory ordinance any explosion would be recognized at once as a violation of the law. Again, the smaller firecrackers, which have been considered so harmless, caused the clothing to catch fire in several instances this year, most of these being girls and young children, who were burned to death. Even the "harmless" sparkler caused some of these deaths which were far more agonizing than if caused by gunshot wounds.

RECENT PROGRESS

It has been well understood that the obliteration of the sorrow and suffering needlessly caused during the annual celebration of the Fourth of July could be brought about only by a vigorous campaign of education favoring more enlightened methods coupled with the enforcement of restrictive or prohibitive legislation against destructive methods. The Journal has been doing what it could for nine long years and apparently with small result until gradually more attention was given by prominent periodicals and newspapers. A campaign for more sane methods was started which, during the last three years particularly, has been most vigorous. Not only has the press of the country largely taken up the cause, but also local, state and national societies. They have not only argued against the use of fireworks, but, more important still, have provided more rational and patriotic means of celebration. A correspondingly vigorous action has been taken by city councils during the last few years in enforcing restrictive or prohibitive legislation. These forces, using and quoting as they did the statistics of the awful results of the old-time methods, as published annually in The Journal, have finally reduced the totals of casualties to a small fraction of what they were in previous years. The necessity of perseverance in this campaign for better methods of celebration is aptly shown this year by the record of Philadelphia. In spite of a most vigorous campaign which was carried on in that city this year, the results seem to be comparatively small, that city still having over 200 injuries. A continuance of that campaign, however, will doubtless prove more effective. The enforcement by the city authorities of restrictive measures, similar to those adopted by Chicago, Boston, New York and elsewhere would do much to help the situation. Reports indicate that hundreds of smaller cities and towns this year enforced either restrictive or prohibitive measures.

THE METHOD OF SUBSTITUTION

Better by far than the negative methods of restricting or prohibiting the use of fireworks this year, however, was the more general adoption of positive methods of reform. Our national Independence Day should cease to be a day of destruction and become a day of joy, of recreation and of enlightenment. From every section of the country comes the news that, in place of the senseless din of former years, more truly patriotic methods have been employed. The music of bands, the children's parade, the witnessing of historic floats, and afterward the picnics, the trips to the parks or the visiting of friends—these methods were employed more than ever before. And the result is very evident: the smallest number of lockjaw cases and other deaths reported in any year since The Journal began the collection of these statistics, fewer destroyed eyes, fewer maimed bodies and an astonishing reduction in the number of injuries. Let the campaign be continued until common-sense methods of celebration shall prevail throughout our fair land!

Crepitus.—The letters composing this word, used as the initial letters of an acrostic, says Dawbarn in the *Medical Record*, help us to remember the signs of fracture:

Crepitus.
Roentgen rays, fluoroscope, etc.
Ecchymosis.
Percussion, osteophonic.
Inability (disability).
Tenderness and pain.
Unnatural mobility.
Swelling, shortening, or other deformity.

Therapeutics

ANTERIOR POLIOMYELITIS: INFANTILE PARALYSIS

The picture of a child suffering from more or less weakness of one of its limbs, which on examination is found to exhibit atrophy of a particular group or groups of muscles, is familiar to every practitioner. This condition was designated as infantile paralysis.

During the last twenty years infantile paralysis has been observed repeatedly in epidemic form. The prevalence of the disease has greatly increased, in epidemics especially, and it has consequently received an increasing amount of investigation, both of its clinical and pathologic features.

Previous to the recognition of its epidemic occurrence, it was described as a disease of the spinal cord affecting chiefly the motor cells of the anterior horns of gray matter. It was considered by some pathologists that the degeneration of these motor cells was the primary lesion. By others it was considered that the cell degeneration and atrophy was due to a congestion and inflammation of the interstitial structures of the spinal cord. After it began to be realized that the disease occurred in epidemics, the opinion gained ground that the disease was of an infectious character, due to the action of some specific poison, and not a local inflammation or nerve degeneration due perhaps to climatic influences or to some autogenous poison, the character of which was undetermined. It is now believed that poliomyelitis in an acute infectious disease which affects chiefly the central nervous system, which may affect the brain as well as the spinal cord, and which may affect the white matter and the meninges as well as the gray matter.

The occurrence of the disease in epidemics has naturally raised the question as to whether it is contagious. Much evidence has been presented in favor of this theory. It has been asserted that the disease is directly transmissible from a patient having it to another with whom he comes in contact; that it may be carried by a third person from the person who is sick to a person who subsequently becomes sick; and that in many cases in which the direct transmission has not been recognized, it has really occurred through one who has been designated as a carrier, who may be a person who has suffered a slight or abortive attack of the disease which has not been recognized.

While these different methods of transmission have been advanced and discussed, it must not be forgotten that a very large number of people who come in contact with the patient suffering from the disease do not contract it. This may be due to some immunity to the disease which is not at present understood, or to the slightly contagious character of the disease.

In most epidemics more than 80 per cent. of the cases have occurred in children under 10 years of age, although a few cases have been observed in adults. Its occurrence in adults is not new, as occasional cases were reported before the epidemics were observed.

The mortality varies from 3 to 30 per cent., according to the severity of the particular epidemic.

The manner in which the contagious element is received has not been definitely established. There seems to be considerable reason for believing that the secretions from the nose and throat contain the contagious element, and that this may be received into the corresponding organs of the individual who contracts the disease. In some epidemics it has seemed that the disease was carried by dust, and it has been proposed to limit the spread of the epidemic by watering the streets. Some observers have implicated the common house-fly as a carrier of the contagion, and while the transmission of contagion in this way seems possible, it is difficult at the present time to prove definitely the culpability of this insect.

The disease occurs more frequently during the warm months of June, July, August and September. The period of incubation has been found to vary from three to thirty days, but is usually from eight to ten days.

The character of the contagious element of the disease for a long time baffled the bacteriologists. Within the last year or two it seems to have been determined with reasonable probability that this is a microorganism much smaller than those which have hitherto been determined to have an important part in the causation of disease. This particular organism is so very small that it can be detected only with the greatest difficulty by the most powerful microscopes. It is so small that it passes through filters which have hitherto been relied on to obstruct entirely the passage of pathogenic organisms. That it is a living organism capable of reproduction seems probable from the fact that very small quantities of the toxic element suffice to produce the disease experimentally in the lower animals, and particularly in the monkey, and that the disease may be transmitted through several successive monkeys.

The effect of this poison on the human individual varies very greatly. The typical lesions, as already stated, are found in the spinal cord, and consist of the changes characteristic of congestion and inflammation. These are a proliferation of the cells about the blood-vessels, with a narrowing of their caliber, and edema in the interstitial substance of the gray matter of the cord. These vascular changes, while most marked in the gray matter of the cord, are seen also in the white matter and in the meninges. The degeneration of the motor cells of the gray matter seems to be secondary to these congestive and edematous changes. Changes of similar character are found in some cases in the brain. The effects of the disease are also observed in the lymph-glands and spleen. The parenchyma of the heart, liver and kidneys shows cloudy swelling.

The symptoms of the disease are those of a general infection with localization in the nervous system. The general symptoms precede the peripheral manifestations of the affection of the nervous system. They are fever, which may be accompanied or preceded by restlessness, irritability and insomnia, or in some cases by restlessness and indifference. There may be convulsions, headache, pain in the back and limbs. Where the severity of the disease is not so great as to cause convulsions, there may be twitchings of the limbs and symptoms of meningeal irritation of the brain and cord. The digestive organs may be disturbed, and there may be vomiting and diarrhea. In other cases constipation is present. Sometimes sweating is a prominent symptom. After these general symptoms have lasted from twelve to seventy-two hours, the characteristic peripheral symptoms appear. These consist of a weakness, or complete paralysis, of certain groups of muscles in one or more of the extremities. Usually no impairment of power is noticed until there is complete paralysis of motion. Sensation is usually unaffected. The loss of motion is accompanied by impairment of the reflexes. If a lower extremity is affected, the patellar reflex of that limb is absent. In severe cases all of the limbs may be affected, and the paresis may advance upward until the muscles of speech, of deglutition, and finally of respiration are affected, the latter usually resulting quickly in death. Where a single limb is affected, the paralysis, after a few days, may gradually diminish, and in a few weeks the power of the limb may be entirely restored. In other cases there may be little change for four or five weeks, when the patient may gradually regain strength, but this improvement, after continuing slowly for several months, may entirely stop, short of complete recovery. The general symptoms usually entirely disappear within a week. There is not, in ordinary cases, interference with the function of the bladder or rectum.

The resulting paresis may be followed by great impairment of the usefulness of the limb, and in many cases by considerable deformity, and, especially when the lower limb is affected, by various forms of club-foot.

The diagnosis is not usually suspected when the patient is first seen, unless at that time paralysis has already intervened and is called to the attention of the physician. When the existence of an epidemic has been recognized the physicians in a locality are more alert to detect cases of the disease, and as a rule the diagnosis is made earlier. Under these circumstances, indeed, the physicians not infrequently err in diagnosticating the disease when some other disease is present.

A search is still being prosecuted for a serum which will cure the disease or cut short its course and prevent its more serious effects. The discovery of such a serum would give increased importance to the early diagnosis of the disease, and efforts have been made to find some method of making a correct diagnosis of the disease before the appearance of the paralysis. The blood has been examined very many times, but no definite change in it has been found, except that generally there is a so-called leukopenia, a diminution in the number of white blood-cells. The cerebrospinal fluid has also been examined in many cases. When the disease is fully developed this fluid shows very little change. There may be a slight increase in the intraspinal pressure, but the fluid is clear. It may contain an increased number of leukocytes, but does not contain bacteria. These findings enable one to distinguish the disease from epidemic cerebrospinal meningitis or from tuberculous meningitis, if the presence of either of the three diseases is suspected, but the early symptoms of poliomyelitis are so like those of many illnesses of childhood, which are of not great importance or significance, that one would hardly be sure of making an early diagnosis of every case of poliomyelitis. Practically, except in the presence of a recognized epidemic, it is difficult, if not impossible, to make the diagnosis of the disease before the occurrence of the peripheral paresis, and as this may be delayed for three or four days, the diagnosis will usually remain in abeyance for several days after the child is taken sick.

Before the peripheral paresis occurs, the disease for which it is most likely to be mistaken is cerebrospinal meningitis. From this disease it may usually be distinguished by the absence of the pain in the back and of rigidity of the muscles of the neck, by the early discontinuance of vomiting, by the absence of impairment of intelligence, and by the absence of Kernig's sign. In adults it may be mistaken for multiple neuritis. Here the more complete paralysis and the rapid wasting of the muscle are important diagnostic signs.

TREATMENT

As already stated, although the search for a serum is being assiduously prosecuted, it has not been definitely determined at the present time. It is, therefore, necessary to rely on general and symptomatic treatment in combating the disease. Perhaps the one measure of treatment on which all writers now agree as being important, is absolute rest. The child should at once be placed in bed and kept quiet, as should all sick children. Following the treatment generally recognized as useful in all infectious diseases, the first medicinal treatment to be prescribed should be a laxative. Probably nothing is more useful than 2 grains of calomel (this for a child 3 years of age), although some prefer the administration of a saline laxative, and still others, castor oil. If vomiting is an important symptom, the calomel will usually be found easier of administration and more satisfactory in action. Elimination may also be promoted by a diuretic, than which none is more useful than 5 grains (0.30 gm.) of citrate of potassium, repeated every four hours—this also for a child of 3 years. If the skin is hot and dry, a diaphoretic may be employed. For this perhaps nothing is more useful than a white woolen blanket wrung out of hot water and wrapped about the child, and outside of this is placed another woolen blanket. This hot pack should not be long continued. Perhaps as valuable is a hot bath or hot sponging.

If the pains are moderately severe, the salicylate of sodium may be given in doses of 2½ grains (0.15 gm.) repeated every two hours, for a child of 3. If the pains are severe, it may be necessary to give opium in some form. This is best administered as the tincture of deodorated opium; one drop, in water, every two or three hours, as needed.

The fact that hexamethylenamin has been found to be eliminated in the cerebrospinal fluid has led to the recommendation of this drug in poliomyelitis. It is highly recommended by some writers who have used it, and as unhesitatingly condemned by others. It is a harmless drug, however, and may do some good. The dose for a child 3 years old is 3 grains (0.2 gm.) every six hours.

Finally, it remains to consider the use of drugs directed toward combating the local lesion of the disease. Considering that congestion, inflammation and edema are found in the spinal cord of patients who have died of this disease, it has been recommended to give ergot, on the theory that this would contract the vessels and diminish the congestion and counteract the edema. It must be remembered, however, that while the vessels show marked cellular proliferation, they are not dilated, but on the other hand, the cellular proliferation often leads to narrowing of their caliber, and some observers have found thrombi within them. But in spite of these facts, not a few believe that ergot is indicated, and that its administration is followed by improvement in the symptoms. This drug may be discontinued when the acute symptoms have subsided, and then the question arises of giving some drug which will remove the products of the inflammation. For this purpose no drug can be more useful than an iodid; but the use of an iodid for this purpose is condemned by many as useless. Small doses, as 1 grain (0.05 gm.) three times a day can do no harm and may be of value.

The application of counterirritants over the spine has seemed to many clinicians to be productive of good, but this measure has been condemned by others.

Recollecting the congestion which is observed, some advise that the child should not be allowed to lie continuously on its back, but should be made to lie first on one side, and then on the other side; but here the opinion of the profession is not a unit, many advising that the child be kept on the back. It seems good sense, however, to change the child's position.

Ice-bags to the head and spine have been advised by some, and as vehemently condemned by others. As children bear ice applications badly, it seems more sensible to relieve congestion of the central nervous system by hot sponging and hot foot baths with the patient reclining.

While treating the acute stage of the disease, one must bear constantly in mind the disastrous after-effects which are likely to follow, and must use every method available in the endeavor to prevent these. When the muscles become paralyzed, great care should be taken to maintain the limbs, especially the legs, in such a position that the affected muscles will not become overstretched and that the unaffected muscles will not become overactive so as to draw the limb into a distorted position. This may be accomplished by elevating the clothes so that the weight of them will not press on the limbs, and by putting sand-bags around the limbs in such a way as to counteract the tendency to abnormal displacement.

After the acute symptoms have subsided, the treatment must be directed to the affected muscles. It is an important question how soon the treatment of the muscles should commence, and what measures should be adopted. As the motor nerve-cells are destroyed or at least temporarily impaired the muscles are deprived of their natural motor control. While one is waiting for the restoration of the nerve-cells, if it is to occur, the nutrition and contractility of the muscles must be maintained. For this purpose nothing is better than galvanic electricity, which should be applied gently to the paralyzed muscles, daily for ten or fifteen minutes, with the negative pole active. This will improve the motility of the part and maintain its contractility. Massage should also be given, but this should be gentle and not severe, and care should be taken not to damage the nerves in the vicinity of the muscle by undue force. In three or four weeks the patient should be encouraged to make voluntary movements of the affected muscles. If the use of the muscles is very greatly impaired, much benefit will be found from placing the patient in a warm bath at a temperature of 100 to 104 F., which must be maintained while the patient is in the bath. The water surrounding the limb on all sides helps to counteract the force of gravity in drawing it out of the proper position. The movements, when they are feeble, are also more easily accomplished in the warm bath. A system of muscular education should be undertaken with the patient, and he should be taught and encouraged to move the different muscles as far as he is able, and he should be coaxed to do this without having it impressed on him that he is moving his muscles, but rather he should be deceived into thinking that he is playing a game or doing some athletic exercise which interests him aside from the muscular movement.

It used to be the custom to advise and to give strychnin even in large doses soon after the symptoms of paralysis developed. It was then given for many months, at least as long as any improvement occurred. Most clinicians now, however, believe that strychnin should not be given. Theoretically the facts would be these; that while the inflammation was active, strychnin would certainly be contra-indicated. Also, if strychnin caused the child to be irritable, restless and nervous, even if given in small doses, if it caused the child's heart to become irritable or rapid, it certainly is contra-indicated. On the other hand, five or six weeks after the onset of the disease, a test of strychnin for a week to see if it would stir up the motor excitability of the spinal cord to the point of improvement, is perhaps advisable. If its action is for good, it could be continued; if it causes undesirable symptoms, it should be stopped.

The treatment by electricity, massage, and systematic exercise should be continued for from six to eighteen months. When, after the expiration of such a period, the patient has been at a standstill for a month or two, the propriety of orthopedic treatment should be considered. This varies from the adjustment of braces to bloodless and bloody surgery. Unquestionably great harm has been done by the application of heavy braces to patients suffering from infantile paralysis; but, on the other hand, there are a certain proportion of patients who are benefited by a light and well-fitting brace. This should not be used to such an extent that the patient will not get an adequate amount of exercise with the affected muscles. Unless this is looked out for, harm will be done by the brace.

The transplantation of muscles, which seemed to offer so much hope of benefit to this class of patients through the restoration of muscle balance, does not usually accomplish as much as is hoped for. Nerve anastomosis has accomplished somewhat more satisfactory results, but is often a disappointment. Its object is to effect restoration of power to the affected muscle. It is especially applicable when the muscles of the hand or shoulder are involved.

Tenotomy to counteract the excessive contraction of healthy muscles has sometimes proved beneficial, but the operation should be performed with care, and should only be undertaken in suitable cases. In some cases where there is excessive mobility of a joint it has been proposed to make the joint stiff by an osteoplastic operation. In still other cases, especially about the ankle, the removal of a portion of the bone, especially of the astragalus, has sometimes served to overcome a deformity due to this disease and to increase the usefulness of the limb.

The proper prophylactic treatment cannot be said to be definitely determined, but inasmuch as there is considerable reason for believing that the disease may be directly transmitted from one person to another, and that the contagium may be carried by a well person from one who is sick, it is desirable to insist on strict isolation of every patient affected with the disease.

It may be advisable to have the streets sprinkled systematically in towns where the infection is recognized to be present.

The room where the patient is sick should be carefully screened and flies should be kept away from the patient, for his own comfort as well as to prevent the possibility of their carrying infection to others.

When a community becomes afflicted with a scare of epidemic infantile paralysis, and frightened parents desire to do something to prevent their offspring from becoming affected with the disease, hexamethylenamin may be administered internally, and gargles of 10 per cent. solution of hydrogen peroxid, or other antiseptics, may be advised.

The Pretty Nearly Clean Operator.—Let us never forget that almost invariably if a clean, freshly-made wound fails of primary healing it is because of actual, tangible, visible particles of dirt conveyed therein while operating or subsequently during dressings. Remember this: Few hands, few failures! and this even when the air is dusty.—Dawbarn in the *Medical Record*.

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[*For other information see second page following reading matter*]

SATURDAY, AUGUST 26, 1911.

A TRIUMPH OF PREVENTIVE MEDICINE

In spite of the human tendency to forget what is disagreeable, most of our readers will recall the surprise and mortification with which the American people confronted the devastating epidemics which swept through the camps of the troops mobilized at the time of the Spanish War, thirteen years ago. It has been, therefore, most agreeable to read the highly favorable health reports which have come from time to time from our troops in Texas, and which have been brought to the attention of the medical profession by the President of the United States in words of hearty commendation.

Now that the Maneuver Division has been abolished by the return of most of its constituent organizations to their stations, it is of interest to be informed from an authoritative source what were the methods of procedure by which the new knowledge of preventive medicine has been applied to camp sanitation, and to have an exact and official statement of the results accomplished. It is impossible to read Colonel Kean's article published in another column of this issue, and especially the remarkable comparative figures at its end, without realizing that an epoch-making achievement in preventive medicine has been accomplished by the Army Medical Corps. For purpose of comparison with the Maneuver Division a table is given showing the typhoid record of a division of volunteer troops camped at Jacksonville, Fla., in 1898 under conditions similar to those at San Antonio this summer. But the difference is amazing. The division of 1898 has 2,693 cases with 248 deaths, which was about the average typhoid incidence of the camps of the Spanish War, while the division of 1911 had one case and no death. The deaths from all diseases were 281 for the former and eleven for the latter.

At the beginning of the Spanish War it was an accepted belief on the part of the medical profession that typhoid epidemics were due to polluted water-supplies and that with pure water this disease was not to be feared, but the experience of that war demonstrated that the question was not so simple and that contact infection, flies and other factors had to be considered. These other factors have been studied with much care in recent years, and it has been found that they can be to a large extent, but not entirely, removed by scrupulous attention to the cleanliness of the camp and the details of personal hygiene among the men.

While the disposal of fecal matters and other wastes seems to have been carried out in this camp with admirable thoroughness of execution and simplicity of method, no new sanitary principle was evoked and we must look further for the explanation of the enormous discrepancy between the amount of typhoid fever in the Second Division, Seventh Army Corps, thirteen years ago and the single case in the Maneuver Division.

It is clear that the medical officers attribute their triumph over typhoid fever to the method of immunization by the injection of dead cultures of the typhoid bacillus which was introduced into the army two years ago as a voluntary measure, and was for the first time made compulsory when applied to the officers and men of this division. The value of this preventive measure, as well as its innocuousness, has thus been demonstrated conclusively and on a great scale. It would seem, therefore, that the time has come for the medical profession throughout the country to follow the example of the Army by making use of the typhoid prophylaxis in general practice. The high degree of efficiency shown by the medical service in the recent mobilization is not fortuitous, but is the fruit of patient, laborious and ably directed efforts to apply the lessons of the Spanish War, and to assure the best results. This efficiency is a legitimate source of pride and satisfaction to the medical profession of the country, and should be a sufficient demonstration to the government of the wisdom of adequate and generous provision for its sanitary service. It is regrettable to read of shortages of officers, of men, and of mules for the sanitary organizations, when only a single division is mobilized.

DEATHS BY DROWNING

This is the season of the year when deaths by drowning are most frequent. Every Monday morning's paper brings its quota. The day after every holiday tells of a like toll of young lives paid for foolishness or accidents that might have been avoided. Usually the victims are in early life and in the very best health, otherwise they would not have taken the chances that prove fatal, and it seems too bad that so often apparently nothing can be done for them. Until well on in September these casualties will continue.

Undoubtedly as the result of old traditions there is in many places too ready acquiescence in the belief that a person who has been under water for five or ten minutes or even fifteen or twenty minutes is necessarily dead. There are well-authenticated records of the resuscitation of persons who had been submerged for half an hour or even longer. Such cases occur particularly in women and children, and the reason seems to be that the fright at finding themselves in danger of drowning actually brings on a collapse or faint in which the heart and breathing stop and they sink, but low-grade life processes continue for a considerable period. Strong men who have battled for their lives and then sunk are not so often revived, though if taken with a cramp they too may suffer from shock or fright with the resultant collapse that is apparently Nature's method of giving the longest possible opportunity for life under these circumstances.

All the recent experience with regard to death from shock or so-called death is extremely interesting in this regard. Patients have been reported as not breathing for fifteen minutes to half an hour and yet they have been resuscitated. The most interesting phase of surgical experience in this regard has been that sometimes when all other methods failed actual rhythmic squeezing of the heart caused that organ to resume its beating. In some of these cases this beating of the heart only maintained itself after the injection of a certain amount of physiologic salt solution into a vein in order to give the heart something to work on more readily.

There would seem to be a question whether some of these methods should not be employed on persons supposed to be dead from drowning. Ordinarily the methods of resuscitation are and ought properly to be exercised at the scene of the accident. Often the person is pronounced dead even before a physician has seen him. Only rarely are such cases transported to hospitals to be treated. There is an unfortunate prejudice among young ambulance surgeons by which ridicule attaches to the bringing in of a patient in whom death ensues without definite signs of life having been exhibited after the patient's reception into the hospital. The ordinary methods of artificial respiration might well be carried on in an ambulance and then in the hospital itself. Recourse might be had to any procedures, even surgical, that seem to give the slightest hope.

Certainly in the present state of our knowledge it would seem that some direct irritation of the heart muscle should be tried before the patient is pronounced dead. The responsibility of surgeons who were operating at the moment when collapse occurred has led to a very thorough development of means of resuscitation for their patients. Unfortunately with regard to the drowned there is no such responsibility and the consequence has been that all of the means at the command of recent surgery have not been applied. The saving of even a few of these young lives would be a very precious advance for modern medicine. The subject deserves the special attention of surgeons.

FOURTH OF JULY CASUALTIES

We present this week statistics showing the number of deaths and injuries resulting from the celebration of the Fourth of July in 1911. It is very encouraging to note a most remarkable reduction in the totals of killed and injured, these being the lowest since 1903 when The Journal began the compilation of these statistics. Of special significance is the great reduction in the number of deaths from tetanus. These reductions are due to an aroused public sentiment favoring saner methods of celebration, and in the creation of this public sentiment the statistics gathered and published by The Journal have had more to do than any other one factor.

Nine years ago The Journal began the collection and publication of these statistics. A year or so prior to that time a few public-spirited newspapers, notably the Chicago *Tribune*, immediately after the Fourth, had published, as a news feature, imperfect lists of the killed and injured. Such lists as were published the day following the celebration were necessarily imperfect. To secure accurate data it was necessary in a deliberate manner to verify the newspaper reports, eliminating those which on investigation were found not to be due to the celebration of the Fourth of July; to obtain reports from hospitals, health officers, physicians and others, of cases which had not been reported by the press and, of still more importance, to include the information regarding those who contracted lockjaw and the deaths which occurred days or weeks following the injury. The compilation of these complete data was begun in 1903 by The Journal, which year after year, has published actual facts concerning the awfulness of the results of our annual Fourth of July celebration; facts showing the agonizing death from lockjaw of hundreds of bright boys and girls; the burning to death of others, mostly girls and little children, and the shooting and maiming of thousands—all this, that we might celebrate the birthday of American freedom! The callous indifference with which the reports were received was disheartening. In 1907, however, in addition to the other figures, the numbers killed and injured for each of the larger cities were shown separately and it was pointed out that the responsibility rested with the city governments. Further, the matter as it appeared in The Journal was reprinted in pamphlet form and these were sent to city officials, to newspapers and to others interested. They were also furnished in quantities to numerous state and civic societies. From that time the change has been marvelous. Newspapers generally began to publish our statistics, and magazines and periodicals took up the cry, urging the adoption of more common-sense methods of celebration and demanding a restriction of the sale and use of fireworks. In this campaign The Journal figures were quoted far and wide, and the expression, "a safe and sane celebration," as opposed to the "barbarous and insane celebration," became familiar to every one. Then several cities, like Toledo, Chicago, New York and Boston, adopted restrictive measures, thereby greatly reducing the casualties, while Baltimore, Washington, Cleveland and Trenton vigorously enforced prohibitory ordinances, with the result that deaths and injuries were reduced to the minimum. And now such restrictive measures have been adopted by thousands of cities, towns and villages throughout the country.

On the other hand, city governments, civic organizations, medical and other societies took up the task of providing better means of celebration; Springfield (Mass.), St. Paul, Detroit, Toledo, Chicago, Pittsburgh and other cities spent thousands of dollars, employed special artists, or adopted other measures, to provide special programs in which music, the display of flags, the marching of soldiers, children's parades and historic floats illustrating natural achievements were prominent features. The results in these cities have been so encouraging and satisfactory that the continuance of such methods and their wider adoption are assured.

This is the day for the merciless exposure, in this country, of low morals, graft and disregard for law which are rife enough in high places and low. It is to be regretted that our national holiday has been largely given over to a furtherance of this apparent decadence in our national life. But an awakened public conscience must not rest with the exposure of wrong-doing; it must establish honesty in place of graft, morality in place of immorality, and love of law and order in place of lawlessness and disorder. And so the forces working for more enlightened methods of celebration should realize that in the use of pageants, military drills and parades with the display of floats representing historic events and national achievements, the Fourth of July is the nation's greatest opportunity to preach the gospel of national and civic righteousness and to point the attention of the youth of our land to the characters who have made and developed this nation and who are worthy of emulation.

The work began by The Journal, therefore, has grown and expanded not only along the line of initiating "safe and sane" methods of celebration but also in the adoption of ordinances which would repress the irresponsible hoodlum and the reckless users of firearms and blank cartridge pistols. And the results in the saving of lives and the prevention of needless injuries have been most gratifying. Injuries have been reduced from 5,623 each year to 1,603; the total of deaths from 466 to 57 and agonizing deaths from lockjaw from 406 to 10—naturally, The Journal feels a satisfaction that its labors have resulted in so much good to the people of this country. But the campaign must not stop. A record of 57 people killed, including ten children tortured by lockjaw and 1,546 others more or less seriously injured as a result of this year's celebration, still reflects too seriously on the conscience and common-sense of the people of our land to permit a cessation of active endeavor until all such needless casualties have been eliminated. The work of reform must go on until the Fourth of July shall cease to be desecrated by disorder and destruction with its aftermath of suffering and sorrow, but shall become as it should be, a day conducive to a stronger love of law and order; to a genuine love for our country and the principles for which it stands.

MALTA FEVER IN TEXAS

On page 730 of this number of The Journal Dr. Ferenbaugh describes several instances of Malta fever developing in Texas. There seems to be no occasion to doubt the correctness of the diagnosis in these cases. They occur under circumstances that are known to be favorable for the development of the disease in question, the symptoms and clinical course are those of Malta fever, and positive agglutinative results are given by the serum of the patients with cultures of *Micrococcus melitensis*, the accepted cause of Malta fever. So far as known this is the first actual demonstration of the indigenous occurrence of this disease in this country. It is true that Colonel Bruce, the discoverer of *Micrococcus melitensis*, states that Malta fever occurs in the Mississippi Valley,[1] but he gives no authority for this statement.

Single instances of imported cases are described by A. A. Smith[2] and Musser and Sailer,[3] and Bruce narrates the following accidental experiment, which played an important part in clearing up some of the problems of the genesis of the disease: In 1905 the S.S. *Joshua Nicholson* shipped sixty-five goats at Malta for export to the United States. The milk was drunk by the captain and many of the crew, with the result that an epidemic of Malta fever broke out on board the vessel, almost everyone who drank the milk being infected. Even after the goats reached America and were placed in quarantine, a woman who drank some of their milk had the fever.

Now that the disease has been shown to occur in Texas, it would not be strange at all if it should be found that it is more widely spread than has been apparent, in all probability masquerading, like so many other febrile diseases, under the names of hitherto better-known fevers. Its demonstration in Texas at this time is another illustration of the great advantage and power of applying modern methods of investigation to clinical problems "in the field" so to speak, and it is a matter of considerable gratification to note that for this kind of work the medical officers of the army appear to be especially well equipped.

It may be recalled that Malta fever is a disease of long duration, characterized by continued fever, profuse perspiration, constipation, frequent relapses ("undulant fever"), rheumatic or neuralgic pains, swelling of joints, or orchitis. Its recorded history is brief and the important discoveries to which we owe our present knowledge about it have been made by British army medical officers. The first thorough clinical description was written by

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1. Bruce, D.; Malta Fever, Modern Medicine, iii, 17. This is an excellent account of the disease and should be read by all who wish to review the facts concerning it. See also Hughes, M. L.: Mediterranean, Malta, or Undulant Fever, 1897.
2. Smith, A. A.: A Case of Levant Fever, Tr. Assn. Am. Physicians, 1897, xii, 414; also Am. Jour. Med. Sc., 1898, cxv, 50.
3. Musser and Sailer: A Case of Malta Fever, Phila. Med. Jour., 1898, ii, 1408, and Tr. Assn. Am. Physicians, 1899, xiv, 163.

Marston in 1861; in 1887 Colonel Bruce discovered the specific bacterium *Micrococcus melitensis;* in 1897 Wright and Semple applied the method of serum agglutination to the diagnosis of the fever, and since 1904 the commission formed under the auspices of the Royal Society of London has made valuable contributions to our understanding of its mode of spreading, the most important being that goats may harbor the cause of the disease in their blood without being themselves manifestly ill, and that the micrococcus leaves the body in the milk, thus affording adequate explanation of many features in the epidemiology of the disease as well as a basis for preventive measures. In human beings the micrococcus is excreted in the urine in a considerable proportion of cases and this may be a means of conveying the disease from place to place as well as of local dissemination.

Current Comment

A POSSIBLE SOLUTION OF THE STORAGE EGG PROBLEM

Under the Food and Drugs Act some of the cold storage people have been much exercised by the regulation requiring that eggs shall not be stored longer than three months before using. They assert not only that it is impossible to keep all of their stock moving within that length of time, but that it is not necessary, as the eggs do not deteriorate sufficiently in that time to make them dangerous or undesirable as a food. Egg dealers have also been accused of removing bad eggs from the shells, canning them, using various preservatives, and selling them to bakeries to use in their baking operations which, of course, would be in violation of the Food and Drugs Act. Attempts have also been made in this country, we believe, to desiccate the egg but probably without great success, as the industry has not attained great proportions. In German China, however, according to the report of Consul J. C. McNally at Tsingtau, the desiccation of eggs is successfully carried on and the product is shipped in large quantities to Germany. One shipment has also been made to the United States with the expectation that the eggs *will* comply with the Food and Drugs Act and that a thriving trade may be built up with this country. The nature of the machinery and the exact method employed in making these dried egg products are held secret. The eggs are carefully candled, the fresh ones are washed and opened and the yolk separated from the white. With the aid of a suction pump the yolk is drawn from a tank through a large pipe into a vacuum in the machine and is dried in fifteen seconds. It is then passed on to a larger receptacle into which the material falls in the form of flakes, which look clean, have a good color and a fresh odor. The flakes are again passed through a machine and come out in a powdered form ready for shipment. It is said that this product can be kept indefinitely if stored in a dry, cool place. The whites of the eggs are put into small glass-bottomed trays about one foot square and placed on shelves in a room having a temperature of 105 to 130 F. After thorough drying, the material is broken up into small pieces or is sometimes powdered or reduced to crystal form resembling granulated sugar. The shells are sold in Germany for poultry food. It requires about seventy yolks to make one pound of the dried product and the whites of about 200 eggs to make a pound of the egg albumin. The price of the whole dried eggs is 31 cents a pound; of the albumin, 44, and of the yolks, 24 cents a pound. This industry in German China is said to be growing rapidly. If all that is claimed for it is true, this certainly should be a more satisfactory method of preserving eggs than that of cold storage. The difficulty, in this country at least, would be the lack of government supervision to insure that the eggs were fresh when utilized.

THE IRREPRESSIBLE CONFLICT

In 1858, William H. Seward, senior senator from New York, in describing the approaching struggle between two opposing conceptions of our national government, spoke of it as "the irrepressible conflict." His prophetic eye foresaw the coming storm. He saw, too, how impossible it was to prevent it. This phrase, caught up at once all over the nation, became one of the famous sayings of this strenuous period. The tendency of history to repeat itself has become proverbial. The present "investigation" of Dr. Wiley by the congressional committee affords another instance of a conflict just as important and irrepressible as that of fifty years ago. At the beginning of the hearing, the question at issue was whether or not Dr. Wiley had violated the law in the manner of employing an expert pharmacognosist. But this point has long ago been lost sight of. The committee and congress are now called on to determine whether the national Food and Drugs Act, won after years of struggle, shall be administered for the benefit of the people, or nullified for the profit of the manufacturers. Wiley and Bigelow and Kebler on the one hand, and Wilson, McCabe and Dunlap on the other, are but the representatives of the opposing interests. The real question is: Which is of greater importance, the health of the American people or the financial prosperity of certain business houses? This is the "irrepressible conflict" of to-day. It must be fought out to a finish and it must be settled aright. Which will triumph, the people or the interests? This is the real issue in the Wiley case.

HEALTH CAMPAIGN IN THE SOUTH

Ten thousand patients suffering from hookworm disease were treated in 107 days by one of the representatives of the Alabama State Board of Health with the help of three assistants, this work covering five counties of Alabama. In addition to treating the victims of the hookworm, the representatives of the state board of health are visiting the physicians, the school teachers and the schools, lecturing to public meetings, showing stereopticon views to demonstrate the cause and progress of the disease and the results of treatment, and using the country newspapers as a means of publicity for their work. The value of the Panama Canal as an object-lesson in modern sanitation has been frequently emphasized. The work now being done in the southern states for the elimination of hookworm disease will be an even greater demonstration of the economic value of modern medical science, when practically applied. The results of restoring to health ten thousand men and women cannot fail to be apparent in all branches of industry, commerce and society in the affected region. The extermination of the hookworm means a new South of commercial and manufacturing importance hitherto undreamed of. Health is wealth; sickness is waste, and no nation or section can prosper when the vitality of its people is being wasted.

Medical News

ALABAMA

Gift to Hospital.—Boston friends of the Tuskegee Institute have donated a hospital to the institute to be known as the "John A. Andrew Hospital." The donors do not desire to have their names made public.

Sanatorium Company Organized.—The Columbiana Sanatorium, Land and Improvement Company has been organized at Columbiana with Dr. Joel Chandler, Birmingham, as president. The company expects to erect a sanatorium and hotel.

Personal.—Dr. John D. S. Davis, Birmingham, is reported to be seriously ill with uremia in Colorado Springs.——Dr. William W. Haden, Huntsville, has been appointed health officer of Madison County, vice the late Dr. William C. Wheeler, Huntsville, to fill unexpired term.

Rotation in Office.—The Madison County Medical Society on August 8 adopted resolutions providing for rotation of the office of health officer in Madison County after the expiration of the present term. The vacancy is to be filled by the senior member of the society who, after a year's service, will resign in favor of the one next junior to him and so on down the line.

GEORGIA

Personal.—Dr. Floyd W. McRae, Atlanta, has sailed for Europe.——Dr. Walpole Brewer, after an absence of eight years in Tennessee and New York, has returned to Atlanta.

New State Journal in Georgia.—In line with the action of other states the Medical Association of the State of Georgia has begun the publication of a state journal as the official organ of the association. The first number appeared in August. It is under the editorial management of the board of councilors, of whom Dr. Wyman W. Pilcher, Warrenton, is chairman. It is issued from Augusta. The first number contains a number of interesting papers and discussions, the program and minutes of the 1911 state meeting, society reports, some editorial comments, personal items, book reviews, etc. It is a very creditable number, neat in its mechanical appearance, and should succeed.

MISSOURI

University Medical College to Continue.—It is announced that the University Medical College of Kansas City, which was reported to have closed its doors, is to be continued, but that it will give only the last two, or clinical years. It is stated that it will accept only students who have taken the first two years' work in medical schools having standards as high as those held by the University of Missouri Department of Medicine.

NEW YORK

Personal.—Dr. Ernest P. Livingston, New York City, sailed for Europe on August 12.——Dr. Claude A. Frink, New York City, has recently been appointed attending surgeon to the New York City Children's Hospitals and Schools.——Dr. Amos T. Baker, Fishkill-on-the-Hudson, assistant superintendent of the Matteawan State Hospital for the Criminal Insane, has resigned.

Milk Exhibit for State Fair.—The New York Milk Committee and the New York Dairy Demonstration Company have accepted an invitation from the State Commissioner of Agriculture to make an exhibit at the State Fair at Syracuse in September. The methods of producing pure milk for New York City will be shown. The milk committee will show by charts and literature what is being done all over the United States in establishing uniform standards of milk inspection, the proper relation between municipal and state authorities, and the need for interstate cooperation. There will be a reproduction of a city milk station and clinics and demonstrations will show what is being done to reduce infant mortality.

New York City.

Anterior Poliomyelitis.—The Rockefeller Institute of Medical Research announces its desire to receive and treat gratis acute cases of anterior poliomyelitis during the present summer and fall. In the event of any fatal case, if an autopsy is held, portions of the spinal cord, the nasal mucosa, tonsils and adenoids are asked for.

Sea Breeze.—Under the auspices of the Association for Improving the Condition of the Poor, 25,886 mothers and infants were given an outing at Sea Breeze last summer. Up to August 16, of this year, the association has sent 17,059 mothers and children to this resort, and of this number 3,000 stayed a week or longer.

Another Milk Station Opened.—The board of health has opened a fifteenth pure milk station in Division Street, one of the most congested sections of the city. In all of the stations to August 13, 10,844 babies were registered; there were twenty-nine deaths during the week ending August 12, the highest number recorded thus far in any one week.

Infant Death-Rate Lower.—The total number of infant deaths from January 1 to August 12, according to statistics of the health department, was 9,398 as compared with 10.365 for the same period of 1910. Dr. Lederle has issued a warning to those conducting the campaign in behalf of the babies and to parents reminding them that while the time of the highest mortality has passed there is often a "high" period in September and vigilance should not be relaxed.

Health Department Closes Bathhouses.—When the authorities closed the bathhouses on Flushing Bay, it was rumored that the action was taken because of the insanitary conditions and the existence of several cases of infantile paralysis in the neighborhood, but later it was learned that the real reason was that the bathhouses did not have proper sterilizing plants for the bathing suits and there were complaints that this had been the means of communicating disease.

Typhoid Fever and Infantile Paralysis Increase.—From August 1 to 12 there were reported to the health department 279 cases of typhoid fever against 191 for the same period last year. In the nine weeks ended August 12 there were 448 cases reported against 298 in the same period of 1910. While there seems to be no certainty as to the cause of the infection the department is inclined to attribute it to infected milk and the supply of milk from several localities has been stopped temporarily. Since the first of August sixteen cases of infantile paralysis have been reported to the health department while there were no cases reported at that time last year.

The Need of Better Statistics.—The relation between vital statistics and the public health is discussed in the monthly bulletin of the department of health. It has been found that the present system in New York City is inadequate and a committee was appointed by the department of health to consider the subject and to make a report. After pointing out the shortcomings of present methods and showing the many ways in which accurate vital statistics would be useful the report makes the following recommendations:

1. Divide the city for the purposes of tabulation into small sanitary districts, the boundaries of which should coincide wherever possible with those of the 708 40-acre tracts of the Census Bureau.
2. Tabulate the deaths, births and marriages in the city in 1910 and subsequent years by these tracts.
3. Establish a working agreement with the Census Bureau regarding the tabulation of deaths and births to be made by each, in order to avoid duplication.
4. Estimate the cost of producing each statistical table now published by the bureau, and consider whether the same amount of money might be made to yield a better return to the city by changing the character of the table.
5. In selecting subjects for statistical investigation emphasize those on which the attention of other divisions of the Department of Health is concentrated and those in regard to which public interest has been or can easily be aroused.
6. Plan to have the state enumeration of 1915 taken with reference to serving as a basis for the vital statistics of this city by adding to the schedule certain questions of local value, as has been done to great advantage in several foreign capitals.

The committee suggests that the name of the present Bureau of Records be changed to the Bureau of Vital Statistics and be organized in three divisions: Records, Research and

Publicity. The members of the committee framing the report are: Prof. Walter F. Wilcox of Cornell University, consulting statistician of the New York State Department of Health; Prof. C. E. A. Winslow of the College of the City of New York, formerly connected with the Massachusetts Institute of Technology; Dr. Cressy L. Wilbur, chief statistician of the Federal Department of Commerce and Labor, and Dr. Robert S. Tracy, who retired as register of records in the department of health in 1901, after thirty-one years' services. From the department of health, Dr. William H. Guilfoy, register of records, and Dr. Hermann M. Biggs, general medical officer, and Dr. S. Josephine Baker, director of the department of hygiene.

NORTH CAROLINA

New Public Hospital.—Winston-Salem has recently voted $100,000, secured by municipal bonds, to be used for the erection of a new public hospital.

Free Antitoxin for Caldwell County.—The commissioners of Caldwell County have instructed Dr. Charles B. McNairy, Lenoir, health officer, to keep on hand a supply of diphtheria antitoxin for those unable to pay for it.

Hookworm Dispensary Opened.—The hookworm dispensary at Scotland Neck was opened, July 27, with Dr. Platt W. Covington, Rockingham, in charge. During the day, 335 applications were received and about forty-eight cases of hookworm were found in the examination of less than one-half the applicants. More than thirty patients were placed under treatment. The dispensary is open every two weeks and at these times patients will be examined and if necessary will be given free treatment.

Personal.—Dr. James J. L. McCullers, McCullers, has been appointed superintendent of health of Wake County by the secretary of the State Board of Health, as the authorities of the county had failed to elect a superintendent as provided by law.——Dr. James M. Templeton, Carey, has been elected first vice-president of the National Farmers' Union of America.——Dr. Charles A. Woodard, Durham, has started for Europe.——Dr. Louis Booker, Charlottesville, Va., has been appointed assistant resident physician to the State Tuberculosis Hospital, Montrose.——The building occupied by Dr. Edward P. Snipes, Jonesville, was destroyed by fire, July 26.——Dr. Thomas A. Mann, health officer of Durham, has resigned. At the last meeting of the Durham Medical Society, resolutions commending the work done by Dr. Mann were unanimously adopted.

NORTH DAKOTA

State Board Elects.—At the annual meeting of the State Board of Medical Examiners held in Fargo, July 31, Dr. Paul Sorkness, Fargo, was elected president, and Dr. George M. Williamson, Grand Forks, secretary.

New Dean for Medical College.—Dr. Harley E. French, for four years professor of anatomy at the University of South Dakota, Vermilion, has been appointed dean of the faculty and professor of anatomy at the University of North Dakota, Grand Forks.

PENNSYLVANIA

Bequest.—The will of the late William Alexander Smith, for many years president and treasurer of the New York Stock Exchange, bequeaths $3,000 to the Pottstown Hospital.

Hospital Additions.—Work on the erection of a dispensary for the Medico-Chirurgical Hospital on Cherry Street, west of Seventeenth, was begun August 17. It is to be a one-story structure 59.7 by 146 feet and will cost $20,000.——St. Christopher's Hospital, Lawrence and Huntingdon Streets, is building a two-story addition at a cost of $1,000.

New Hospitals Opened.—The J. C. Blair Memorial Hospital Building, Huntingdon, completely equipped and furnished, was opened for inspection August 24, the physicians' and press day. After examination of the hospital, a buffet lunch was served and in the afternoon addresses were given by Drs. Francis P. Ball, Lock Haven, and Theodore L. Chase, Philadelphia, and a press representative. The public will be allowed to inspect the building from August 26 to August 30, and the hospital will be opened to receive patients September 4.

Typhoid on the Decrease.—According to the records of the bureau of health for the week ending August 19, there were ten deaths from typhoid fever, but the number of cases reported was fifty-six as compared with sixty-four for the preceding week. Of the present week's total, fourteen cases were reported from the Thirty-Second Ward and investigation by the inspectors of the health bureau showed that the cases were contracted from milk infection. The cause was traced to a dairy outside of the city and Chief Vogelson reported the result of the investigation to the State Health Commission and the dairy was closed.

Reduction of Tuberculosis Death-Rate.—Dr. Thomas H. A. Stites, chief of the division of dispensaries of the State Department of Health, in a paper read before the Sixteenth Censorial District Medical Society, held at Montrose, August 15, declared that Pennsylvania had the lowest death-rate from tuberculosis during 1910 of any of the five middle states. He stated that the average number of deaths during the year from all causes in the states of Maryland, Massachusetts, New York, Ohio and Pennsylvania was 408,050, of which 42,075, or 10.3 per cent. were due to tuberculosis. Pennsylvania reports the lowest percentage, 8.6 per cent. from this cause.

Reading Promises Refrigerator Service.—On August 10, the State Railroad Commission concluded a hearing of complaint against the Reading Railroad by a local milk dealer, who is seeking to compel that road to transport milk to the city in refrigerating cars, by deciding that no recommendations would be made until the producers and shippers of milk should have a hearing, and to accomplish this sent invitations to 2,000 milk producers within a radius of 60 miles of the city. In the meantime a conference was held between John F. Auch, general freight traffic manager of the Reading Railroad and a committee of the Interstate Milk Producers' Association and assurances were given by the railroad that refrigerator car service will be furnished to shippers of milk to Philadelphia, beginning next spring.

Freedom from Water Pollution.—The waters of the state of Pennsylvania under enforcement of the purity of water law in 1905 are being freed from pollution. Phoenixville, the last town on the Schuylkill, taking an unfiltered supply of water from that river, has now submitted plans for germicidal treatment of the water pending the submission of comprehensive plans for a modern filtration plant. Lebanon has prepared plans for a sanitary system of sewers and sewage treatment plant and has appropriated funds for the construction of these improvements. Plans have also been drawn for a complete sanitary sewerage system and treatment plant for the borough of Middletown. In Lancaster, extension of the water filter plant are necessary on account of the increasing population of that city. Ligonier has been compelled to build a sewage treatment plant and its work is now in progress. Sunbury has been refused permission to extend its sewers until prior decrees of the commission of health which ordered sanitary improvements, have been obeyed. Jersey Shore is to have a new pumping station and intake, germicidal treatment of the water and a large storage reservoir. Lock Haven is also about to build a new dam and a large storage reservoir. Renovo, which owns its own water works and sewer systems, is extending and improving both. Palmerton, the headquarters of the Pennsylvania Zinc Company, is enlarging the sewage treatment plant and extending sewers in accordance with plans approved by the department. Danville has submitted plans for a complete sanitary sewer system and for sewage treatment work which has been approved by the State Department of Health. The Muncy Water Company has been cited to show cause why its charter should not be taken away on complaint of the commissioner of health unless forthwith it treats its water temporarily and installs at the earliest moment a modern filter plant. The borough of New Brighton and a chain of municipalities stretching along the banks of the Beaver River have been ordered to provide for an outfall sewer and ultimately for a sewage disposal plant. Harrisburg is expending this season $500,000 for improved sewerage work to take the sewage out of the river all through the major length of the city along the banks of the Susquehanna.

GENERAL NEWS

Unauthorized Subscription Agencies.—THE JOURNAL has repeatedly published warnings against paying money to unauthorized persons who pretend to take subscriptions. All agents of THE JOURNAL who are authorized to receive money carry signed and sealed current letters of identification on the Association stationery. Physicians write of having paid money to the Seattle Subscription Company, Seattle, Wash., and to J. R. Russell of the Twin City Magazine Company, St. Paul, Minn. They receive receipts, but that seems to be all that they receive for the money as none of it is sent to the periodicals for which subscriptions are taken. THE JOURNAL called attention to the Seattle Company not long ago when a man was operating under that name in Montana. It seems that he has been working east and that physicians are still careless about their money.

The Christian A. Herter Memorial Fund.—In the *Journal of Biological Chemistry*, August, 1911, appears an announcement of The Christian A. Herter Memorial Fund. This fund, now amounting to $40,000, has been confided to the care of the directors of the *Journal of Biological Chemistry* under the provisions of a declaration of trust executed by them. The chief aim of the trust is to further the interests of the *Journal of Biological Chemistry*, an instrument for the development of science created by Christian A. Herter and fostered by him up to the time of his death. In the event that conditions arise removing the need for such a use of the income, provisions are made by which the fund shall continue as a memorial of Professor Herter and of service to humanity by the promotion of scientific research. Dr. Simon Flexner, New York, is the president and Dr. A. N. Richards, Philadelphia, the secretary of the directory in charge of the fund.

FOREIGN NEWS

Dr. Herbert Timbrell Bulstrode, medical inspector to the local government board and lecturer on preventive medicine at Charing Cross Hospital Medical School, London, died suddenly at his home in London, July 21, aged 52. Dr. Bulstrode was an arduous and painstaking worker, and the first fruit of his important work was the Milroy lectures delivered in London, before the Royal College of Physicians in 1903, on "*The Causes, Prevention and Control of Pulmonary Tuberculosis.*" He was next commissioned to make especial enquiry into the sanatorium treatment of tuberculosis, the result being the "Sanatoria for Consumption," published by the local government board. His next most important work in the line of preventive medicine was on the spread of diseases by shellfish, and as a result of his revelations, no doubt is left as to the necessity of legislative action prohibiting the sale of shellfish from contaminated sources.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Aug. 12, 1911.

Remarkable Improvement in the Health of London

A remarkable improvement in the public health of London is shown by a recent report issued by the government. During the past year the general death-rate was 13.7; the death-rate from consumption was 1.2; and the number of infant deaths per thousand births was 103. Contrasting these figures with the average for the years 1901-5, the general death-rate was 17; the death-rate from consumption, 1.6, and the infantile death-rate, 139. Thus, the general death-rate has declined 19 per cent.; the death-rate from consumption, 25 per cent., and the infantile death-rate, 26 per cent. A similar improvement is shown in regard to infectious diseases. The number of cases of scarlet fever in the past year was 10,509, of diphtheria 5,494, of typhus 3, and of typhoid fever 1,284. The corresponding figures for the average of the years 1901-5 were 10,509, 8,865, 12 and 2,478. The only disease which has shown some increase is measles. The great improvement in the infantile death-rate is due to the increased regard for infantile hygiene, which is largely the result of the work of "health visitors." The precautions against importation of exotic disease have never been more successfully carried out than at present; although both cholera and plague have from time to time appeared in the Port of London, the infection has never spread. Although, as mentioned in a previous letter to THE JOURNAL, plague rats were found at Wapping, a higher point on the river than ever before, the disease has not spread to man.

Lunacy in England and Wales

The statistics of lunacy for 1910 which have just been issued show that there were 2,604 more certified insane persons in England and Wales at the end of the year than on the corresponding date of the previous year. The corresponding increase for 1909 was 1,766, for 1908 2,703, and for 1907 2,096. For the decennium ending 1910 the average increase was 2,521. Extending the survey backward a continuous increase in insanity is shown. Thus, since 1869 the population has increased by 64.6 per cent., while the number of insane has increased by 150.4 per cent. In 1869 the ratio of the insane to the population was 23.92 per 10,000; on Jan. 1, 1911, the ratio had risen to 36.4. From these figures the conclusion might be drawn that for many years insanity has been increasing. However, the commissioners on lunacy, who issue these reports, say: "The increase in the number of insane recorded year by year is no proof of an actual growth of insanity in the community, although it is often assumed to be such. Such facts as are available tend to the conclusion that if insanity is increasing at all it is doing so very slowly and by no means proportionately to the increasing numbers of insane persons under care." The figures are explained by an increasing accuracy in the diagnosis of insanity and a greater readiness to send patients to asylums, who otherwise would remain uncertified. There is a most interesting discussion in the report of the inheritance of insanity. It is estimated that there are about three insane persons who apparently come from insane stock, for every one with a family history of insanity. But the commissioners insist that these figures cannot be used to minimize the importance of inheritance. They point out that the question is much more complicated. There may be a family history—and, in fact, there are many such histories—in which no positive insanity can be traced, but in which there are evidences of instability of the nervous system due to a large variety of causes, of which alcohol is one of the most important. This instability may manifest itself in many directions apart from actual insanity.

Pharmacists and Secret Remedies

The annual meeting of the British Pharmaceutical Conference has just taken place at Portsmouth. A very important discussion took place on the subject of secret and proprietary medicine. A report was submitted giving the answers received by the conference, to a series of questions addressed to eighty-eight local associations of pharmacists in all parts of the United Kingdom. They all agreed that the sale of secret and proprietary medicines by pharmacists is considerable. Eighty-six per cent. stated that proprietary articles are ordered by doctors in their respective districts to a considerable extent, and of these 20 per cent. reported such ordering to be by verbal recommendation, 20 per cent. by prescription, and 60 per cent. in both ways. In reply to the question, "Would you regard with favor proposals for legislation making compulsory a declaration on the label of all the principal ingredients"? 70 per cent. replied in the affirmative, 24 per cent. in the negative and 6 per cent. were doubtful; 88 per cent. were of the opinion that such legislation would curtail the sale of undesirable quack medicines. In regard to the prescribing of proprietary articles by doctors, the suggestion was frequently made that much greater use should be made of the British Pharmaceutical Codex in prescribing. The discussion was opened by Mr. E. F. Harrison, who referred to the usual mendacious advertisements by which quack medicines were sold. He regarded the great majority of secret remedies having a large sale as possessing a certain usefulness in some of the disorders for which they were recommended, but as frequently advertised by grossly exaggerated and untrue statements. He moved the following important resolution which after discussion was carried unanimously: "That this meeting of the British Pharmaceutical Conference is of opinion that a public inquiry, by a royal commission, a select parliamentary committee or a departmental committee, should be held in regard to the advertising and sale of proprietary secret medicines and the law relating thereto, with a view to further legislation for the prevention of fraud and quackery."

The Plague in India

In his speech on the Indian budget the under-secretary for India made an important announcement on the subject of plague. He thought there was urgent need for the education of the masses of India in the principles of hygiene. Though archaic habits might be tolerable in the open country, when transferred to the crowded town they became unsupportable. If there were less ignorance and less perversity, plague would never have found the lodgement it had. Persons living under proper sanitary conditions were virtually exempt. Plague did not attack the jail population or the native army; it attacked the ordinary civil population because they lived in houses which were not rat-proof and because they treated the rat almost as a domestic animal and refused to kill it. Plague had now been present in India for fifteen years, and the deaths from it had reached the appalling total of 7,500,000. Of this, the Punjab accounted for nearly 2,500,000. In the last ten years, 11 per cent. of the population of that province had died from plague. The vaccine discovered by Professor Haffkine conferred a comparative, though not absolute, immunity for a time. But the unhappy accident at Mulkowal, where several villagers died of tetanus after inoculation gave the treatment a blow from which it has never recovered. The disease was now largely fought by house evacuation, which was easier in villages than towns. Special plague doctors and subordinates were appointed. When plague occurred they visited the locality, offered inoculation and gave assistance to persons to vacate their houses. An improvement in the general sanitary condition of the people had taken place and was being promoted by grants from the government.

The Compulsory Segregation of the Subjects of Venereal Disease

An influential deputation, among whom were eminent members of the profession interested in questions of public health —Sir Victor Horsley, Sir James Crichton-Browne, Dr. F. W. Mott—has presented to the president of the local government board, Mr. John Burns, a petition urging that effect should be given by detention or some form of compulsory treatment, to the recommendation of the royal commission on the poor laws, for the detention in poor-law institutions of persons suffering from venereal disease, when medically certified to be dangerous to others. The petition was signed by a number of well-known ladies representing various associations engaged in philanthropic work, physicians and members of town and borough councils. Sir Victor Horsley and Dr. Mott supported the petition from the medical standpoint and Lord Kinnaird, chairman of the committee of the Lock Hospital, spoke as a life-worker among young men. Mr. Burns in reply quoted figures showing a marked diminution in venereal disease during recent years, and while holding out no hope of legislation empowering detention, assured the deputation that he would by administrative action do all in his power to promote the cure and stay the progress of venereal disease.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, August 4, 1911.

Suture of the Abdominal Aorta

The Académie de médecine has adjourned until October 3. At its last session Dr. Routier, surgeon of the hospitals of Paris, reported a case in which the abdominal aorta was sutured. A diagnosis of hydatid cyst, based on the reaction of Weinberg, was made on a young man of 24 who complained of pains in the left hypochondrium. In the course of the operation it was ascertained that the tumor was in reality a solid one covered by a very vascular membrane adhering to the aorta. It was enucleated with great difficulty and the tags of the enveloping membrane were clamped off by forceps. One of the last adherent points was clamped off and the tumor removed. Each pair of forceps was successively replaced by a ligature. At the moment of tying the last one, a jet of blood burst into the surgeon's face. Compressing the aorta with his left hand, Dr. Routier placed on the orifice in the aorta, which was as large as a brachial artery, two hemostatic forceps which stopped the hemorrhage. But this was considered only an emergency measure and it was to be expected that on the removal of the forceps a fatal hemorrhage would ensue. A second operation was, therefore, necessary and on the next day the patient was anesthetized. With needles threaded with fine silk an attempt was made at first to pass a ligature behind the forceps but the needle and the thread broke. Taking then the needle of Reverdin, which is used in intestinal sutures, Routier passed a catgut suture into a fold of the aorta under the forceps and tied it. The two ends of the suture were then passed around and tied solidly under the two forceps. Success was complete. No blood ran when the forceps were withdrawn. A fragment of the epiploon nearby was placed over the ligature and the abdomen was closed. All went well; there was a temperature of 37 C. (98.6 F.) and 78 pulsations to the minute for eight days. In the night of the eighth day after an abrupt movement there was a kind of demisyncope, pain in the abdomen, facial pallor, perspiration of the skin and thorax. A secondary hemorrhage was thought of. This passed, however. The patient finally died on the sixteenth day. It was impossible to ascertain the cause of death, as autopsy was not permitted. This seems to be the third case of suture of the abdominal aorta.

Vaccination Against Typhoid Fever

The minister of war, M. Messimy, has entrusted to Dr. Chantemesse, professor at the Faculté de médecine de Paris, and Dr. Vincent, professor at the Ecole d'application de médecine et de pharmacie militaires du Val-de-Grâce, the task of applying among the troops on the Algerian and Moroccan frontier the method of antityphoid vaccination. This decision was taken in response to a resolution of the sanitary service of the province of Oran submitted by medical inspector Février, director of the sanitary service of the army to the consultant commission on military hygiene and epidemiology, which voted its approval. As in the armies of other countries, this vaccination will be entirely facultative.

The Dogs of the Sanitary Service

The use of dogs in the relief of the wounded was recently tried at Vincennes in the course of instruction of the sanitary service of the military government of Paris. Several men who were supposed to be wounded were hidden in various places on the plain. All the pseudo wounded were found in a few minutes. The trial was made as follows: The dog is sent off by his master in a given direction at various distances; he aids the wounded, takes his kepi and brings it back. The dog leads or, one might say, drags his master immediately to the spot where he found the wounded man without hesitation. In default of the kepi the dog hunts with his paw or his muzzle in the wounded man's pocket and takes his handkerchief, glove or some other object showing the identity of the man.

The importance of the use of such dogs is readily understood. Wounded men exposed for a long time on the field of combat may be exposed to attacks of birds of prey and in our colonial expeditions several have undergone frightful mutilation by the natives. The methods of combat, the arrangement of the troops during battle over a more or less extent of territory, modern long-range fire-arms, night battles —all these make the work of the ambulances very difficult. The number of men who disappear is always large because the relief of the wounded during action becomes constantly more difficult. The wounded who are too weak to call or to leave their shelters are abandoned unless the orderlies are accompanied by dogs who are used to searching for the wounded. It seems, therefore, that it is necessary for modern armies to possess dogs trained in the sanitary service.

The New Hôpital de la Pitié

The new hospital built to replace the old building of the hôpital de la Pitié has just been opened. It is a model building established at the cost of 11,000,000 francs (about $2,200,000) and comprises thirty-two medical and surgical buildings.

The Physician Not Always Obliged to Continue the Care of the Patient

While it is true that the obligation of a physician to respond to a patient's call is one imposed by conscience solely, the case is altogether different if the physician abandons his patient at a critical moment when his retirement may endanger the life and health of his patient. A Paris tribunal has recently decided, however, that the withdrawal of the physician is justified in some instances. The case which elicited this opinion was that of an obstetrician who withdrew because the patient or those around her were determined to select a nurse whose antecedents were unknown to the physician. The court held that this physician, in renouncing the responsibility and the fees of confinement acted honorably and was in a position to demand damages on account of the injury to his professional reputation through the unjustified action of his patient.

DRESDEN LETTER

(From a Special Correspondent)

International Hygiene Exhibition

DRESDEN, July 28, 1911.

A visit to the International Hygiene Exhibition at Dresden brings a number of surprises. First, one is surprised that in an exposition supposed to be international in character, the catalogues, explanations, labels, etc., are practically all in German. It was surely not too much to expect to find the labels and abbreviated catalogues in French and English.

Second, one is surprised that so large a proportion of the exhibition is commercial in character, containing much that is only remotely, if at all, connected with hygiene. While it is primarily a hygienic exhibit, apparently nothing has been refused admission that would help to make the exhibition a financial success. There are, as might be expected, many beer gardens over the ground, tobacco stores and the like. There are numerous "Coney Island" attractions and ingenious means of attracting the nimble penny. Photographing, copying or reproducing any of the exhibits is forbidden. The right to photograph was let to one photographer, who I was told gave 20,000 marks ($5,000) for the monopoly. Needless to say the enterprise long ago paid for itself.

The English-speaking nations are poorly represented in the exhibit. Great Britain was late in opening her exhibit, which though excellent in many ways, is hardly commensurate with the splendid sanitary achievements of that country. This is probably owing to the reluctance of the British Government to make an appropriation for the Dresden Exhibition, notwithstanding the fact that the British colony in Dresden had raised a handsome purse as a starter.

And the United States! There is nothing whatever to indicate that there is such a country. The only exhibit from the American continent is a small one from Brazil. The French, Swiss, Austrians, Russians and Spanish all have exhibits. The Japanese have an admirable exhibit, and one naturally recalls the difference in the medical management of the armies in the Spanish war and in the Russo-Japanese war. Not that American physicians were not alive to the importance of hygiene and sanitation, but the non-medical "men above" had not learned the lesson. Too much red tape, in fact. This characteristic and the indifference of our government officials to health matters may explain the failure of our physicians and sanitarians to obtain an appropriation for Dresden.

One is amazed at the completeness and the excellence of the educational and scientific exhibits. The care and expense involved in the preparation of the exhibition are extraordinary. Explanations have been made and demonstrations installed in order to make plain to the man in the street the anatomy and histology of the body, the functions of the organs, the needs of the body in food, air, exercise, clothing, etc., and yet any physician will find well spent the time he spares for a study of the health exhibit. The composition of the body, of the blood, of various food substances, of the excretions, etc., are shown by means of jars containing the exact amount of each constituent in a manner much more impressive than can be done by means of charts. Similar exhibits have been made elsewhere, but perhaps not to the same extent as here. One physician, a German, passing through the exhibit stated that it took him years to learn what here he might obtain within a few months. There must be at least 100 compound microscopes, some of them binocular, exhibiting tissues, cell growth and microscopic life; and there are many stereoscopes of the new type, adjustable for pupillary width (which sell here for about $14.00). There are admirable papier maché and wax figures of the human body and its parts, and an excellent series (in wax) of skin diseases, including the exanthems, and syphilis and lupus. There are exhibitions of beds for the sick, bath apparatus, healthful clothing, ventilating and heating systems, etc. The effort has been made to demonstrate the evil effects of tobacco, alcohol and other narcotics, corsets, tight shoes and the like. The care of infants and children, the value of exercise, care of the health in old age, the importance of proper nutrition, have been carefully shown with a view of making the exhibit of real value to the general public, who, by the way, throng the buildings and the grounds in the afternoons so densely as to make it inconvenient to get around. There are motion picture exhibits of silk-worm culture, the protective agencies of the blood (a magnificent representation of the clumping of bacteria in the blood), etc., the projection of microscopic life, and stereopticon lectures. Infectious diseases, tuberculosis and tropical diseases have had due attention. But to particularize is only to omit other features fully as good. This is certainly an exhibit of which the Germans may feel proud.

BUDAPEST LETTER

(*From Our Regular Correspondent*)

Budapest, Aug. 7, 1911.

Ancient Jewish Hygiene in the Dresden Hygiene Exhibition

Having spent my holiday in Dresden, I found many things of interest in the wards of the Jewish section, which attracted my attention with its descriptions of ancient hygienic institutions and laws approaching in perfectness many an institution and law of to-day.

The exhibition in Dresden devoted two spacious halls to the exhibits of the sanitation of biblical, ancient and medieval Jewry.

The thora being the foundation of the Jewish hygiene, a good part of the biblical and ancient class is occupied by the exhibition of thoras. Much attention is paid by the visitors to a thora about 1,000 years of age, written on red leather.

The walls are covered with Hebrew and German texts of Moses' hygienic laws. The inside of the hall is occupied by a plaster cast of King Solomon's lakes and water-works. Here we find books, drawings and plans on the water supply of biblical Jerusalem, ancient Jewish residences and reliquiæ found at excavations. Bricks, roofings, walls and fountains, drainings, sewers for the removal of droppings and photographs of household utensils are here in a great abundance.

A separate group deals with the housing, showing an evolution from tents to houses of mud and later of stone. The type of the ancient houses has scarcely changed in comparison with the houses of Palestinian and African Jews, or the tents of some nomad tribes.

Another group deals with the rules to be observed in eating and drinking. The customs at meals can be seen on plaster models. Here are pictures of old ovens, fireplaces, grain store-houses, models of flour mills and the reliquiæ of original grain-crushing stones. In contrast to these ancient things, we see exhibited the present foods, dishes and household tools of native Palestinian and African Jews.

In the medieval class the walls are covered with quotations from the Talmud, as the source of sanitary laws. One case is full with special instruments and apparatus for circumcision. One or two among them are real masterpieces of art. The series of circumcising instruments is most interesting, commencing with a knife, the handle of which is ornamented with rubies and diamonds, and ending with a simple knife suitable for being boiled and sterilized. Another case contains the sick nursing instruments which every parish had to procure for itself.

The ritual handling of the dead is represented by plastic models. This is supplemented by a collection of grave-stones and burial requisites.

An important feature of medieval hygiene of the Jews was the public baths. Here are bathing and washing requisites, together with a collection of hand-washing basins.

The management of meat is instructively illustrated by a series of pictures, showing the processes from the salting of the meat to its being dished up. A plaster cast shows the humanity of ritual slaughtering and the brutality of killing an ox with a blow. An anatomic preparation shows the bloodless heart of the animal, beside it, the killed animal's heart full of blood.

The exhibition is finished with a room furnished and fitted up entirely with original ancient furniture; a laid table awaits the advent of the Sabbath.

This Sabbath awaiting room, apart from its interesting historic and folk-lore aspects, stands as an expression of the social thinking of an ancient people, who made it a law to have rest on the seventh day of the week.

In the modern sections of the exhibition we meet with names of Jews from every land prominent in the domain of medical and hygienic sciences. Among them are Birch-Hirschfeld, Born, Cohnheim, Fränkel, Güartner, Remák, Hebra, Schwalbe, Weigert, Ascher, Askanazy, Kronecker, Loeb, Hein, Izraeli, Munk, Pollitzer, Fuchs, Haffkine, Koplik, Senator, Marmorek, Metchnikoff, Weil, Ehrlich, Wassermann, Landau. This list shows that the special Jewish hygiene and sanitary education of biblical and ancient times has not passed away without traces.

BERLIN LETTER

(*From Our Regular Correspondent*)

Berlin, Aug. 3, 1911.

Personal

Professor Reichenbach of Bonn has received a call to succeed Professor von Esmarch as director of the Hygienic Institute at Göttingen.

Professor Weber, formerly director of the medical clinic at Halle, celebrated the fiftieth anniversary of his doctorate.

Professor Jamin of Erlangen and Professor Umber of Altona have been nominated, neither one being given a preference, to succeed Professor Gerhardt in Bern.

Prohibition of Weapons to Students

In view of the numerous accidents which are caused by the hasty use of firearms by students, the Prussian school authorities feel obliged to issue a general prohibition of weapons for students of the higher schools. Every student who is found in possession of any kind of firearm or ammunition will be punished by expulsion from the school.

The Position of Physicians in the Criminal Statutes

In Germany there exists the peculiar state of affairs that, according to the construction of the criminal statutes, the physician is threatened with punishment even for professional treatment that is carried out according to established rules. A surgical operation which is undertaken without the express consent of the patient may, for instance, be treated as a bodily injury and the physician may be convicted on account of it. Inasmuch as at present a new criminal code is being prepared, physicians are bestirring themselves to have the paragraphs which threaten their professional activity removed or so modified that their construction will be less dangerous. On account of the importance of this matter the last Deutsche Aerztetag took it into consideration. The committee to whom the reports were referred, presented the following propositions which were adopted by the Aerztetag:

On account of the inclusion of medical professional treatment under the sections "Crime and attempts on the life" and "Bodily injuries," a legal uncertainty is produced which makes the business of the physician difficult and which is injurious to the public health. The Aerztetag expresses its opinion that treatment by a physician when it is conducted according to the rules of medical science and art should not fall in the criminal classification of premeditated bodily injury. The Aerztetag recommends the addition to the preliminary paragraphs of the criminal code, the following statement: "A person shall not be punishable who undertakes any action for the saving of a person or the property of himself or that of another from a present danger for which he is not responsible, and which cannot be removed in a more appropriate way, except when the danger is only slight or involves only the saving of property, unless the damage to be expected from the operation is disproportionately greater than the danger. One is not punishable who undertakes to save a person from a present danger not to be removed in a more suitable way than by an operation on the person himself, except when the danger is only slight."

To Limit Advertising Intended for the Laity

In Germany there exists the custom (less common in your country) of drug manufacturers advertising medicinal preparations, not only in the medical press, but also in the daily papers. Other firms place in the circulars accompanying their specialties recommendations of other remedies. The last Aerztetag has passed a resolution against this advertising business which favors self-medication by the public.

Average Length of Life of the German People

From the death-rates which give the number of deaths per 1,000 births at the end of the first, second, third, etc., year of life, the length of life, that is, the whole number of years that these 1,000 persons have lived, is obtained; this sum divided by 1,000 gives the average length of life for the individual. This number is called the average length of life. From the three published mortality tables for the entire German people, the following average life duration can be calculated: From 1871 to 1880, for men, 35.58 years; for women, 38.45; from 1881 to 1890, for men, 37.17; for women, 40.25; from 1891 to 1900, for men, 40.56; for women, 43.97. The average for men has risen 5 years in the last twenty years, that for women five and one-half years. Still Germany is behind many other European countries. In Sweden, the average length of life is about ten years higher than in Germany, in Belgium and the Netherlands about five years, and in France and England about four years. The chief reason for this difference lies in the considerable infant mortality of Germany.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Aug. 9, 1911.

An Embryo Found in an Elephant in the Vienna Zoological Garden

A few days ago the female elephant in the Vienna Zoological Garden died after having been ill for some weeks. The interesting patient had been treated by two professors of the Vienna veterinary high school. The predominant symptoms of the disease were anorexia and frequent attacks of what may be called swooning fits. When the animal died, it was examined by representatives of the museum of natural history, of the anatomic institute and the veterinary high school. A regular post-mortem examination was made, and it was a very difficult task, for the body weighed 1½ tons even after the enormous loss of blood. The most interesting finding of the necropsy was an embryo, completely developed as to macroscopic appearance, measuring 65 cm. and apparently 11 months old, thus lacking another eleven months to its maturity. This uncommon specimen was taken possession of by the anatomic institute. The mother elephant was found to have suffered from chronic gastro-intestinal inflammation with ulcerations of the anterior wall of the stomach. A detailed account of the findings will be published soon, while a good deal of the material obtained will need to be studied and worked up later on.

The Spread of Cholera in Austria

Since writing the last time about the appearance of cholera in this country (THE JOURNAL, June 24, 1911) the disease has claimed in Trieste, our chief port, over twenty victims. The infections were all traced to steamers coming from Italy, and in spite of very strict and careful precautions a spread could not be prevented. As it appears now, there are several foci from which the various cases of the disease have originated in the city. Much bitter comment has been heard concerning the attitude of Italy, in not reporting the presence of cholera in its districts to the other governments, as it ought to have done according to the last cholera convention. It is said here of Italy that actual cases of cholera have been officially "diagnosed away," so as not to prevent the influx of visitors to the country and the two exhibitions. In Austria, as soon as the cases occurring on board ships were traced to the neighboring country, the commercial traffic was placed under careful control. But before the measures went into effect, infection had taken place in several different localities. It is interesting to note that all cases observed afterward were among those persons who were under control as "suspects," having been found to be "carriers of vibrios," at the routine examinations of all persons in contact with a definite cholera patient. Therefore, the hope of the board of health that the outbreak will soon be suppressed is justified. Another source of danger of infection is the *Hinterland* of the Austrian coastline, where just now the Turks are fighting the Albanian tribes. Cholera has been found there too, and the low sanitary standard of these people means a real menace to that part of Europe. Therefore, the Austrian government has sent down a number of well-equipped physicians to these districts.

A Special Prize for Austrian Physicians

Two French practitioners, Dr. Meussand and Dr. Rivier, have notified the senate of the University of Vienna that they have placed at the disposal of this body a sum sufficient to yield yearly an interest of 1,000 francs ($200) for the purpose of sending an Austrian physician to Paris. The candidates must not have obtained their diplomas longer than four years ago, and must spend the prize in Paris, staying there at least three months in the hospitals pursuing scientific objects. The prize is granted in two equal sums, at the beginning of the Paris stay and six weeks later, respectively. This unusual but most welcome grant is intended to promote more intimate relations between the two famous continental medical schools, Paris and Vienna. At present, there is hardly any connection between the two save occasional visitors during the international congresses.

Effects of Agrarian Prohibition Tariffs on Meat Imports

The influence of our great agrarian proprietors on legislation is very powerful, and their political preponderance was the chief reason that some ten years ago a tariff was introduced in Austria making the importation of meat and living animals into this country impossible, because unprofitable. But owing to the constant rise in prices on all articles of food, frozen meat was imported this year from South America in limited quantities. It sufficed to show that it is possible to procure from abroad wholesome and healthy food at a considerably lower cost to the consumer. No sooner was this evident, than the landowners again exerted their influence to stop further importation of frozen meat. They succeeded. But then the population, especially the poorer part of the rural population, brought all influence to bear on the government to obtain cheap food. Medical men were at the head of the movement which wanted to "open the frontiers." They pointed out how much underfed the population is at present, and how much the consumption of meat per capita has decreased within the last few years in all Austrian towns. And they pointed out, too, how national defense would suffer, and has suffered already, because the recruits, underfed as they are, become less and less fit to be enlisted in the army. This latter argument seems to have had effect on the government, for now a commission for studying the problem of food has been appointed. But a more substantial gain is the permission for the importation of a certain quantity of frozen meat, which was wrested from the government. Once obtained, this concession will no doubt be necessarily increased, with or without the permission of the landowners. A similar conflict has broken out with regard to the supply of milk. Here the dairymen try to create a ring or a trust to push the price of milk to a higher level. The violent indignation of the urban population has for the moment averted the danger.

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Oliver H. Babcock, M.D. University of Buffalo, N. Y., 1861; for nearly half a century a practitioner of Hammondsport, N. Y.; died at his home in that city, July 29, aged 77.

Worthington W. Hopkins, M.D. University of Maryland, Baltimore, 1858; died at his home in Gover's Hill, near Havre-de-Grace, Md., August 4, aged about 74.

Brayton Muscott, M.D. University of California, San Francisco, 1896; of Friday Harbor, Wash., was accidentally shot and killed, August 6, aged 39.

Charles Eddy, M.D. Bellevue Hospital Medical College, 1873; died at his home in Brooklyn, August 10, aged 62.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

TABLET MEDICATION AND THE PUBLIC

There is no denying the fact that the tablet form of medication has manifest advantages; its convenience and accuracy are alone sufficient insurance that it has come to stay. But these advantages are also potent for much harm, in that they appeal to the non-medical no less than to the medical man, and thus become a great inducement to self-medication. The man who wishes to be his own physician is especially well satisfied with a preparation which calls for no prescription, but can be obtained at the drug-store and taken without the need of glass or spoon. Many tablet manufacturers stamp their initials on their tablets, or make them of a distinctive color or shape; this is done, so they say, to prevent substitution on the part of dishonest pharmacists. While firms may be justified in protecting their interests by adopting a general mark or device to identify tablets of their make, there is no justification for the plan followed by some of giving a particular shape or a particular color to each combination. Such a device can have but one object in view, namely, to bring prominently before the patient the individuality of the medicine he is taking. That this may lead the patient to injure himself or others by the careless use of highly poisonous drugs goes without saying.

Our attention has been called recently to a particularly dangerous form of advertising. A firm has put on the market a bichlorid of mercury tablet, each tablet containing 7½ grains of mercuric chlorid and these are sold under the catchy name "Clover Antiseptic Tablets." Not only are these tablets sold under an innocent-sounding title, but the public safety is still further disregarded by their being made in the shape of a clover leaf. The good fortune supposed to attend the clover leaf would not only prove attractive, but would also lessen the sense of danger because of the supposed harmlessness of vegetable remedies.

The abuse of the corrosive sublimate tablet has borne bitter fruit in accidental poisoning by the use of this substance under the titles of antiseptic tablets, disks, wafers, etc. There is much to be regretted by both the physician and the pharmacist in the history of the employment of mercuric chlorid. The day of its indiscriminate use by the medical profession has long passed, but the knowledge gained by the public from tablets inadvertently placed in their hands by physicians or recommended by druggists has led to their use, especially for the prevention of conception, with disastrous results. Several cases have recently come to notice in which the victim or her consort placed the undissolved tablet in the vagina with fatal effect.[1] The use by the public of such tablets in vaginal douches for the same purpose has been the cause of death[2] in several cases.

In the interest of public safety, physicians should do their utmost to discourage the indiscriminate use of corrosive sublimate tablets. They should particularly avoid those which, because of their non-descriptive, catchy title or distinctive shape are liable to be used by those ignorant of their dangers.

LAY APPRECIATION OF EXPOSURE OF MEDICAL FRAUDS

The Poughkeepsie (N. Y.) *Eagle* comments editorially as follows: "The American Medical Association is doing good work by giving extra publicity to the exposures of fake cures that have been made and clinched through prosecution by the government for fraudulent use of the mails. This publicity is not only through The Journal of the Association, but stories of some of the more notorious frauds are published in pamphlet form. 'The Rupert Wells Cancer Cure Fraud' is the latest of these we have seen. The story of how such quack remedies deceive hundreds of ignorant people, and some of fair intelligence, is not without touches of human interest, and seems to us to show that here is a department where more government supervision and regulation would benefit many people."

"NEW REMEDY" STAGNATION

An article by Professor Biderfeld in the *Deutsche medizinische Wochenschrift*, June 22, 1911, p. 1153, on the remedies introduced during the last year, begins by discussing the dearth of new discoveries in medicines. The author recalls that in an article published last year he stated that stagnation in the discovery of new remedies was a characteristic of the present time. This stagnation becomes apparent by the substitution for remedies based on really new ideas, medicaments elaborated by slight variations of old ideas or even of mixtures of well-known remedies. The author further notes that the same conditions have prevailed during the past year. That this stagnation is felt seriously in Germany is shown further by an advertisement which appears in another German medical weekly in which it is stated that a large firm will pay physicians for ideas suggesting new forms of medication. No alarm need be felt at this dearth of inventiveness, as we feel sure the medical profession will be benefited by a respite from the flood of new synthetics and will grasp the opportunity thus afforded for a closer study of those now on the market.

Correspondence

Austin Flint's Notes on a Consumptive

To the Editor:—In going over the records of the late Dr. Austin Flint, New York, I happened on the following report of a case of pulmonary tuberculosis, together with Dr. Flint's notes.

Case Pulmonary Tuberculosis. Circumstances Illustrating Diagnosis Before Ulceration Has Ensued

A young man, aged 25, applied to me to-day for a cough. He has been in the habit of going on the lake in the summer seasons. At present he is tending a recess. His habits are good, but occasionally he takes a little spirit. I mean that he is not intemperate. Beyond this I did not inquire. His name is George Fowler. Is not aware that his family are prone to consumption. [They are not.] His father is still living. As this case illustrates the value of circumstances bearing on diagnosis in obscure cases of pulmo-tuberculosis before ulceration, I will note precisely its important points for after-reference.

His cough has existed *all* winter and he has not before applied for medical advice. [Phthisis rarely creates alarm.] It did not follow any acute attack of bronchitis or any other pulmonary inflammation. Thinks he must have taken cold, but this is a matter of course.

His cough has not been severe, has created no pain and never occurs inde[illegible] [This shows that in this case, if the[illegible] of the tuberculous deposit does not ex[illegible]ough. It is only the presence of the [illegible]bes.]

He expectorates moderately, but especially in the morning, and represents it as sometimes yellow, and sometimes of a darker color, probably ink color. [It strikes me here is a point of some import: if the case were one of bronchitis purely (which it is if it be not tuberculous) there would be greater secretion through the day, because the mucous membrane would be more irritated by inhaling dust, etc. Another and much stronger point, moreover, is that the cough and expectoration are both too little for a chronic bronchitis.]

He has at various times had shooting pains in different portions of chest. [Slight pleuritic adhesions. This is very different from the soreness of bronchitis, which would also be more or less constant if it existed at all.]

He has had very frequently chilly sensations, especially shooting down the back and into the shoulders. Is subject to them almost daily. Attributes this to having formerly had the fever and ague. [A symptom of considerable value.] Has lost considerable flesh during the winter. [Another bad symptom.] Is readily put out of breath by exercise. [Another significant fact.] Has lost some strength, but thinks not much. [He has probably lost more than he thinks.] Appetite is good. Bowels are regular. Sleeps well and feels well. Digests well for aught that he knows.

Pulse is 100. I saw him last night and to-day. It enumerated this last night and was not less this morning. [A very bad symptom. One of the most reliable of rational facts. He had indubitably tuberculous fever. With the same accelerated circulation from any other cause—from local inflammation he would be more conscious

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[1] The Journal A. M. A., April 9, 1911, pp. 1203 and 1459.

[2] The Journal A. M. A., April 30, 1910, pp. 1459, 1867; also Am. Jour. Obst., March, 1911, p. 473.

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Walter W. Lester, M.D. Louisville (Ky.) Medical College, 1892; a member of the Kentucky State Medical Association; died at his home in Paintsville, Ky., August 7, from typhoid fever.

Warren W. Drake (license, Ohio, years of practice, 1896); for forty-eight years a practitioner of the state; died at his home in Findlay, August 6, from cerebral hemorrhage, aged 70.

Oliver H. Babcock, M.D. University of Buffalo, N. Y., 1861; for nearly half a century a practitioner of Hammondsport, N. Y.; died at his home in that city, July 29, aged 77.

Worthington W. Hopkins, M.D. University of Maryland, Baltimore, 1858; died at his home in Gover's Hill, near Havre-de-Grace, Md., August 4, aged about 74.

Brayton Muscott, M.D. University of California, San Francisco, 1896; of Friday Harbor, Wash., was accidentally shot and killed, August 6, aged 39.

Charles Eddy, M.D. Bellevue Hospital Medical College, 1873; died at his home in Brooklyn, August 10, aged 62.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

TABLET MEDICATION AND THE PUBLIC

There is no denying the fact that the tablet form of medication has manifest advantages; its convenience and accuracy are alone sufficient insurance that it has come to stay. But these advantages are also potent for much harm, in that they appeal to the non-medical no less than to the medical man, and thus become a great inducement to self-medication. The man who wishes to be his own physician is especially well satisfied with a preparation which calls for no prescription, but can be obtained at the drug-store and taken without the need of glass or spoon. Many tablet manufacturers stamp their initials on their tablets, or make them of a distinctive color or shape; this is done, so they say, to prevent substitution on the part of dishonest pharmacists. While firms may be justified in protecting their interests by adopting a general mark or device to identify tablets of their make, there is no justification for the plan followed by some of giving a particular shape or a particular color to each combination. Such a device can have but one object in view, namely, to bring prominently before the patient the individuality of the medicine he is taking. That this may lead the patient to injure himself or others by the careless use of highly poisonous drugs goes without saying.

Our attention has been called recently to a particularly dangerous form of advertising. A firm has put on the market a bichlorid of mercury tablet, each tablet containing 7½ grains of mercuric chlorid and these are sold under the catchy name "Clover Antiseptic Tablets." Not only are these tablets sold under an innocent-sounding title, but the public safety is still further disregarded by their being made in the shape of a clover leaf. The good fortune supposed to attend the clover leaf would not only prove attractive, but would also lessen the sense of danger because of the supposed harmlessness of vegetable remedies.

The abuse of the corrosive sublimate tablet has borne bitter fruit in accidental poisoning by the use of this substance under the titles of antiseptic tablets, disks, wafers, etc. There is much to be regretted by both the physician and the pharmacist in the history of the employment of mercuric chlorid. The day of its indiscriminate use by the medical profession has long passed, but the knowledge gained by the public from tablets inadvertently placed in their hands by physicians or recommended by druggists has led to their use, especially for the prevention of conception, with disastrous results. Several cases have recently come to notice in which the victim or her consort placed the undissolved tablet in the vagina with fatal effect.[1] The use by the public of such tablets in vaginal douches for the same purpose has been the cause of death[2] in several cases.

In the interest of public safety, physicians should do their utmost to discourage the indiscriminate use of corrosive sublimate tablets. They should particularly avoid those which, because of their non-descriptive, catchy title or distinctive shape are liable to be used by those ignorant of their dangers.

LAY APPRECIATION OF EXPOSURE OF MEDICAL FRAUDS

The Poughkeepsie (N. Y.) *Eagle* comments editorially as follows: "The American Medical Association is doing good work by giving extra publicity to the exposures of fake cures that have been made and clinched through prosecution by the government for fraudulent use of the mails. This publicity is not only through The Journal of the Association, but stories of some of the more notorious frauds are published in pamphlet form. 'The Rupert Wells Cancer Cure Fraud' is the latest of these we have seen. The story of how such quack remedies deceive hundreds of ignorant people, and some of fair intelligence, is not without touches of human interest, and seems to us to show that here is a department where more government supervision and regulation would benefit many people."

"NEW REMEDY" STAGNATION

An article by Professor Biderfeld in the *Deutsche medizinische Wochenschrift*, June 22, 1911, p. 1153, on the remedies introduced during the last year, begins by discussing the dearth of new discoveries in medicines. The author recalls that in an article published last year he stated that stagnation in the discovery of new remedies was a characteristic of the present time. This stagnation becomes apparent by the substitution for remedies based on really new ideas, medicaments elaborated by slight variations of old ideas or even of mixtures of well-known remedies. The author further notes that the same conditions have prevailed during the past year. That this stagnation is felt seriously in Germany is shown further by an advertisement which appears in another German medical weekly in which it is stated that a large firm will pay physicians for ideas suggesting new forms of medication. No alarm need be felt at this dearth of inventiveness, as we feel sure the medical profession will be benefited by a respite from the flood of new synthetics and will grasp the opportunity thus afforded for a closer study of those now on the market.

Correspondence

Austin Flint's Notes on a Consumptive

To the Editor:—In going over the records of the late Dr. Austin Flint, New York, I happened on the following report of a case of pulmonary tuberculosis, together with Dr. Flint's notes.

Case Pulmonary Tuberculosis. Circumstances Illustrating Diagnosis Before Ulceration Has Ensued

A young man, aged 25, applied to me to-day for a cough. He has been in the habit of going on the lake in the summer seasons. At present he is tending a recess. His habits are good, but occasionally he takes a little spirit. I mean that he is not intemperate. Beyond this I did not inquire. His name is George Fowler. Is not aware that his family are prone to consumption. [They are not.] His father is still living. As this case illustrates the value of circumstances bearing on diagnosis in obscure cases of pulmotuberculosis before ulceration, I will note precisely its important points for after-reference.

His cough has existed all winter and he has not before applied for medical advice. [Phthisis rarely creates alarm.] It did not follow any acute attack of bronchitis or any other pulmonary inflammation. Thinks he must have taken cold, but this is a matter of course.

His cough has not been severe, has created no pain and never occurs independently of expectoration. [This shows that in this case, if there be tubercles, the presence of the tuberculous deposit does not excite irritation sufficient for cough. It is only the presence of the secretion in the bronchial tubes.]

He expectorates moderately, but especially in the morning, and represents it as sometimes yellow, and sometimes of a darker color, probably ink color. [It strikes me here is a point of some import; if the case were one of bronchitis purely (which it is if it be not tuberculous) there would be greater secretion through the day, because the mucous membrane would be more irritated by inhaling dust, etc. Another and much stronger point, moreover, is that the cough and expectoration are both too little for a chronic bronchitis.]

He has at various times had shooting pains in different portions of chest. [Slight pleuritic adhesions. This is very different from the soreness of bronchitis, which would also be more or less constant if it existed at all.]

He has had very frequently chilly sensations, especially shooting down the back and into the shoulders. Is subject to them almost daily. Attributes this to having *formerly* had the fever and ague. [A symptom of considerable value.] Has lost considerable flesh during the winter. [Another bad symptom.] Is readily put out of breath by exercise. [Another significant fact.] Has lost some strength, but thinks not much. [He has probably lost more than he thinks.] Appetite is good. Bowels are regular. Sleeps well and feels well. Digests well for aught that he knows.

Pulse is 100. I saw him last night and to-day. It enumerated this last night and was not less this morning. [A very bad symptom. One of the most reliable of rational facts. He had indubitably tuberculous fever. With the same accelerated circulation from any other cause—from local inflammation he would be more conscious of severe ailment. He would be confined to his bed or at least to his house. On the contrary, he is now about his business. If the disease were chronic bronchitis he would not have this pulse.]

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[1] The Journal A. M. A., April 9, 1911, pp. 1203 and 1459.

[2] The Journal A. M. A., April 30, 1910, pp. 1459, 1867; also Am. Jour. Obst., March, 1911, p. 473.

Says he has no fever at night; hands and feet are not hot. Does not perspire. [He has tuberculous fever, not yet hectic fever.]

Here is a general view of the rational symptoms. Now of the physical. There is evidently a slight dulness on the left side con*trasted with the right. I think there is slight dulness on the right* also. I think the respiration is rough on both sides and there is an evident distinction between the two sides—the left being more rough. This distinction was particularly perceptible posteriorly in the interscapular spaces. Action of heart unusually perceptible to the ear, in all parts of chest. On the left side there is a slight hitch in the respiratory murmur. No râles were perceptible.

In view of the foregoing history I consider it demonstrative that this young man is the victim of tuberculous disease of lungs. His symptoms will progressively increase, he will shortly have hectic fever, judging especially from the tuberculous fever, I predict that he will succumb within six months, and very likely within three.

Mark that he is not now in his own opinion an invalid. He is merely troubled with a slight cough. He has no apprehensions. He has no cavities, no hectic—and yet he may confidently be pro*nounced a doomed man. If the result confirm this prediction it* will certainly show that attention to the points connected with the diagnosis of pulmonary tuberculosis enables the practitioner to have a prescience which must appear remarkable to one not acquainted with the value of evidence bearing on the subject.

April 10, 1846.

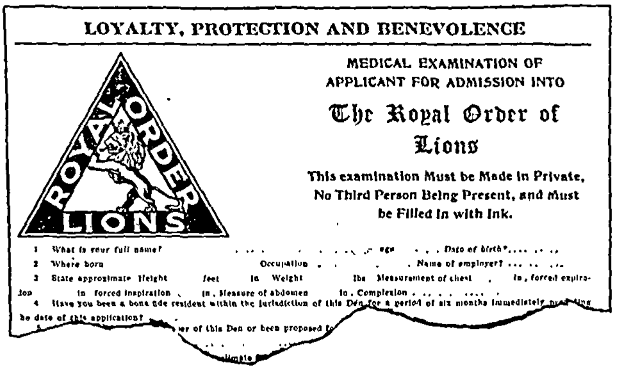
Oct. 11, 1846. This person went to Iowa and passed the summer. He returned recently and again applied to me for advice. His cough and other symptoms were about the same as they were last April. He had lost little if any flesh. Had taken no medicine. I did not examine him closely, but I could not discover on a general examination that the disease had made any appreciable progress. Dr. Trowbridge, Sr., saw him with me, concluded in the diagnosis of incipient tuberculosis and joined in advice to seek a warm climate for the winter. The patient has taken our advice, but his particular destination I do not know. He promised to write.

That Dr. Flint should have grasped so clearly the diagnostic significance of the various symptoms and signs of tuberculosis as early as 1846, shows the acuteness of his diagnostic ability. It seems worth while to publish this case from a historical point.

Lawrason Brown, Saranac Lake, N. Y.

The Royal Order of Lions Fraud

To the Editor:—There is a fellow traveling over the country inducing the physicians to examine for his new order the "Royal Order of Lions" so called. He calls on two physicians in each city to obtain their services as examiners. For this privilege they pay $5.00 in advance. He gives you a receipt, bids you goodbye and that is the last you hear from him. He has roped in any number of doctors throughout Minnesota. There is no such order in existence so far as we can learn. Enclosed find blank application and receipt. He is of slight build, dark complexion, medium height, traveling with a woman whom he calls his wife; she is a dark, short, robust, pretty-faced girl. I thought a notice could be published in the next issue which might be the means of catching him somewhere.



LOYALTY, PROTECTION AND BENEVOLENCE

MEDICAL EXAMINATION OF
APPLICANT FOR ADMISSION INTO

The Royal Order of
Lions

This examination Must be Made in Private,
No Third Person Being Present, and Must
be Filled in with Ink.

1 What is your full name? . . . . age . . . Date of birth? . . . . . .
2 Where born Occupation . . . . Name of employer? . . . . . .
3 State approximate Height feet in Weight lbs Measurement of chest , in , forced expiration in forced inspiration , in , Measure of abdomen in , Complexion . . . .
4 Have you been a bona fide resident within the jurisdiction of this Den for a period of six months immediately preceding the date of this application?

Photographic reproduction (reduced) of part of the medical examination and application blank used by the individual who persuaded physicians to pay $5 for the privilege of becoming a medical examiner for the hypothetical Royal Order of Lions.

Charles F. Brigham, St. Cloud, Minn.
President St. Cloud Board of Health.

Comment.—The application blank, receipt and other printed matter which Dr. Brigham sends with his letter have nothing on them to show where the headquarters of the Royal Order of Lions are located. The "Receipt and Admittance Card, Supreme Den of the World, Royal Order of Lions" has the name "J. L. Giblin, National Organizer" printed on it and the receipt is signed "J. R. Landauer, Supreme Organizer." The latter name also appears on some of the printed matter that details the wonderful advantages to be gained by joining "The Fastest Growing, Fraternal, Social and Beneficial Order." The descriptive pamphlet states that this is "The Order That Does Things;" Dr. Brigham's letter indicates that it evidently does.

Fetal Death from Knotted Cord

To the Editor:—In The Journal, August 12, page 563, Dr. Froehlich reports a case of death of fetus due to twisting of the cord. In a somewhat similar case under my care, labor occurring on the date expected, the patient had not felt life for six days. Physical examination revealed absence of heart sounds. A fully developed male child was born dead. There was a knot in the cord about 6 inches from the fetal end, drawn tightly enough to cut off the circulation completely.

Mark Beach, M.D., Clinton, Kan.

Queries and Minor Notes

Anonymous Communications will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DIAGNOSIS OF A CASE OF NARCOLEPSY

To the Editor:—I have a somewhat baffling case under my care, and in view of the fact that the text-books, so far as I have investigated, suggest very little on the subject, I appeal to you. History: The patient is a married woman, under middle age, the mother of two healthy children. Her pregnancies have been very easy; she is of *medium height* and weight, is intelligent and looks the picture of good health and says she feels it, with the exception of some sharp pains of an anginal character over the pericardium, from which at intervals she is free. She came to North Dakota about ten years ago and began almost at once to experience great drowsiness. She would rest her arm on the table, for example, at meal-time and fall into a profound sleep, from which she would be aroused with considerable effort. To prevent a further lapse it would be necessary for her husband to walk with her in the cold air. At this time, and for some years back, she would lapse into a sound sleep, even while at the table, when chatting with friends or while holding the baby. When carrying her baby she had to be watched in order to be prevented from dropping it. When she felt the attack coming on while at her meal she would hurriedly sip a little tea from her cup, but often she would begin to snore while the cup was half way between the table *and her lips. The sleep is profound, lasts only* a few minutes, after which the patient wakes perfectly refreshed and clear. Objective findings: Urinalysis is negative; the chest and abdominal organs are normal; the vision is good; the pupils are equal in size and active to light and accommodation; no focal symptoms of intracranial tumor or epilepsy are present. As the condition is very perplexing I should greatly appreciate advice.

M. L. G.

Answer.—The case appears to belong to that rare and interesting, though obscure, condition called "narcolepsy," which Gélineau first described in the *Gazette des Hôpitaux*, 1880, p. 626. In the *Archives Gén. de Médecine*, 1905, No. 25, Raymond succinctly defines true narcolepsy as a condition characterized by a sudden and irresistible inclination to sleep, occurring during the hours not usually spent in normal sleep and appearing at irregular intervals, lasting a variable period of time. The person so affected may be overpowered by sleep in the midst of his ordinary occupation and at most unexpected moments, even during meals at table. Authorities still differ in respect to the proper place of narcolepsy in the classification of diseases. All agree in calling it a functional neurosis when it is not symptomatic of brain tumor, syphilis or autointoxication. Although Gélineau described narcolepsy as an independent neurosis, most neurologists agree with Féré ("Twentieth Century Practice of Medicine," p. 501-503), who classes it among the symptoms of hysteria. In speaking of sleeping attacks, he says among other things: "In hysterical subjects we sometimes observe sudden but short-timed attacks of deep slumber, which Gélineau has designated by the name of narcolepsy, but which are always symptomatic, as Ballet has well shown." Continuing, Féré compares these crises to postepileptic stertor, but he regards them as larval forms of hystero-epilepsy, which is true hysteria, according to our latest conceptions of this symptom-complex. In conclusion, he quotes Pitres as having reported the case of a woman who had to yield to the sleeping attack even when she ran about trying to prevent it, or when she placed herself under a shower-bath. In opposition to this view, it must be stated that neurologists of experience see cases in which a short, sudden attack of drowsiness constitutes the sole symptom of petit mal in idiopathic epilepsy. If there be no obesity, diabetes, gout or hepatic disorder, and if tumor or syphilis of the brain can be excluded, and further, if there are *no other* evidences of hysteria, the condition should awaken a strong suspicion of epilepsy of the petit mal variety. The treatment of true narcolepsy is extremely unsatisfactory. If after a most painstaking examination we are convinced that there is no organic or metabolic disorder present, we resort to all those measures advised to combat hysteria. A course of thorough purging may cause a temporary disappearance of the tendency to sleep-attacks. Further, attention to proper hygiene and environmental changes and psychotherapy may be tried. Last of all, if these measures are of no avail, a course of bromids, as for ordinary epilepsy, should be given a faithful trial.

Besides the authorities mentioned, there will be found in the *American Journal of the Medical Sciences* for August, 1906, an interesting report on a case of narcolepsy, by Albert N. Blodgett, who traces the condition in his case to a faulty heredity, extending over several generations.

HYPODERMIC INJECTIONS OF EUCALYPTUS OIL IN TUBERCULOSIS

To the Editor:—Please give references and a review of the literature on the use of oil of eucalyptus by hypodermic injection in tuberculosis. J. A. BURNETT, M.D., Marble City, Okla.

ANSWER.—The following articles have appeared in recent years:

Berliner, M.: Zur Behandlung der Tuberkulose, Deutsche klin-therap. Wchnschr., Nr. 17, 1906.

Blüm [illegible] erculosis with Eucalyptus Oil Injections, [illegible] Tuberkulose, B. viii, H. 2. Abstr. in THE [illegible] p. 1960.

Berliner, M.: Treatment of Tuberculosis with Injections of Eucalyptol, Beiträge zur Klinik der Tuberkulose, B. x, H. 3.

This treatment of tuberculosis has been recommended by Berliner who gives it by hypodermic injections of a solution in castor oil. He begins with a somewhat weak solution, but increases until the dose reaches 2 c.c. of a 33⅓ per cent. solution twice a week. His results, he claims, are unusually favorable. Cough, he says, becomes less troublesome or disappears and the dyspnea is relieved. Blümel submitted the method of Berliner to a critical trial and reports unfavorably, and feels that it is his duty to warn against certain side-effects as dangerous and injurious, especially as to the method of application advocated. To this Berliner replies that the purity of the castor oil is very important and recommends a proprietary preparation made by a somewhat obscure German firm. Blümel found that patients complained of pain after the injections, but Berliner denies that that has been his experience. The objection of Blümel that the injections were followed by the appearance of albumin in the urine is not accepted by Berliner, who attributes this symptom to an antecedent disease of the kidney.

MILD TYPE OF SMALL-POX

To the Editor:—During the last few years there have been reported in the United States small-pox epidemics with remarkably low mortality. On account of this benignity, many physicians believed that these were not the real small-pox, and much discussion was aroused. Since last year we have had a similar epidemic here, and some physicians believed that we had to deal with a new disease, much like small-pox, but still different in many ways. I am very anxious to obtain information on the following points: 1. Has it been proved that the epidemics in the United States were true small-pox?

2. On what is this proof based?

A. CARINI, Director Pasteur Institute, Sao Paulo, Brazil.

ANSWER.—1. No serious doubt has been expressed about it in the last ten years. From the early months of 1899 to 1901, many physicians having little or no experience with small-pox were unable to make a diagnosis of the mild type of the disease at that time prevalent in the United States. A few health officers with little experience with this disease were doubtful about the diagnosis, but at no time were those of the health officers who had had experience with small-pox in doubt about the nature of the disease. Anyone who is at all familiar with the various types of small-pox could not hesitate for a moment to pronounce the disease under consideration small-pox. Cases of the disease under discussion from all parts of the United States, Canada and Mexico, where the mild and debatable disease existed, were clearly small-pox, though the death-rate was low.

From Jan. 1, 1899 to Dec. 31, 1902, 692 cases of small-pox were treated in the Chicago Isolation Hospital, with a death-rate of a fraction under 2 per cent. (1.78 per cent.). From Jan. 1, 1903, to Dec. 31, 1905, 1,293 cases were admitted to the hospital, with a death-rate of 10.5 per cent. From Jan. 1, 1906, to the present date (Aug. 8, 1911), 355 patients were admitted to the Isolation Hospital, of whom but three died and two of these were imported from Europe—a severe type of the disease.

2. The period of incubation is the same as that of small-pox. The three days of prodromal symptoms followed by a papular eruption and a drop in temperature are invariably present. The life history of the lesion is that of small-pox—papule, vesicle, pustule, scab, leaving pigmentation spots, though the course is sometimes short, like small-pox modified by an old vaccination, but all the symptoms are present if the diagnostician has the patience to secure all the symptoms, not forgetting that many patients will lie about their symptoms through fear of being sent to the hospital. The disease attacks only those not protected by vaccination. Those *recently vaccinated, say within ten years, or those vaccinated* and revaccinated, do not contract the disease. Those not vaccinated, when exposed to the disease almost invariably contract the disease. Confluent and hemorrhagic cases of small-pox were placed side by side with hundreds of these mild cases in unvaccinated subjects in the hospital wards, where exposure of the latter to the former was close and prolonged, *and in no instance did a second disease develop.*

Dr. Rawlings, house physician at the Isolation Hospital, vaccinated a series of 100 patients recovered from this disputed mild type of small-pox and failed to secure a vaccination on any of them, though none had previously been vaccinated.

Confluent and hemorrhagic small-pox are contracted from the mild cases of so-called "Cuban itch." This has repeatedly been observed. *An attack of the disease protects from small-pox;* it protects against vaccination; vaccination protects against the disease and the disease conveys to others the severe types of small-pox.

A symposium on the subject of small-pox was read at the meeting of the American Medical Association held at St. Paul, in 1901. The papers read were published during that year. After a full discussion of the subject, a resolution was passed declaring it to be the opinion of the Section on Practice of Medicine that the epidemic then prevalent and under discussion was small-pox.

CARBON-DIOXID SNOW—CALENTURA FEVER

To the Editor:—Please tell me through THE JOURNAL (1) what carbon-dioxid snow is, and (2) what calentura fever is. I cannot find a definition for either term.

S. C. BROADSTREET, Mount Pleasant, Texas.

ANSWER.—1. Carbon-dioxid snow is carbon dioxid in the solid form, in which it is obtained by allowing the liquefied gas to escape from a container in the form of a spray. The evaporation of some of the liquid takes heat from the rest so that it freezes in fine particles like snow. Carbon-dioxid snow can be collected in a cloth or piece of chamois skin, pressed together and molded into various shapes. The layer of gas which surrounds it prevents it from freezing the hand unless too great pressure be exerted. When it is applied to the skin, the intense cold produced by its evaporation freezes the skin and produces the desired caustic effect. See article by W. A. Pusey, THE JOURNAL, Oct. 19, 1907, p. 1354.

2. *Calentura* is Spanish for "heat" or "fever," and is applied to a mild ephemeral or continued fever of tropical countries, often called by the natives of the English-speaking tropics a "cold." The term is also applied to thermic fever or sun-stroke.

THE COMPOSITION OF HAIR DYES AND THE EFFECTS OF THEIR USE

To the Editor:—What reliable scientific information exists in regard to hair dyes? I am interested to find out what substances are employed, whence they come from, what injurious effects they may produce, etc. R. C.

ANSWER.—Hair dyes are chiefly of two classes. (1) Those which secure the effect by precipitating a metallic compound, usually sulphid of a reduced silver salt in the hair, and (2) those which darken the hair by the oxidation of some organic substances, such as pyrogallol. A number of combinations of the first class have been recommended in the past but they have largely fallen into disuse. Dyes of the second class are largely proprietary and depend on the use of various coal tar products which are likely to be irritating to the skin and may produce a severe dermatitis. Among the metallic compounds used for dyeing the hair may be mentioned salts of silver, lead, mercury, bismuth and iron. The salts of silver blacken on exposure to light or by the use of reducing agents. Silver may be absorbed by the scalp, but poisoning in this manner seems to be unusual. Lead is probably more frequently absorbed and it is possible that it may give rise to serious poisoning. The same may be said to be true of mercury. Of course, no such effects are likely to be produced by the salts of bismuth or iron. Systemic poisoning from hair dyes seems to be very rare and some dermatologists state that these substances are not known to have a deleterious effect on the general health. A considerable number of reports have appeared in The Journal of dermatitis, sometimes quite severe, which was attributed to the use of a proprietary hair dye, known as "Mrs. Potter's Walnut Stain." This dye (as well as another called "Eau Sublime") contains paraphenylene diamin which by the action of hydrogen dioxid gives quinone, a substance which has a very irritating action. The poisonous qualities of paraphenylene diamin have long been known. In addition to thirty-two cases of poisoning that have been reported to The Journal (Feb. 13, 1909; March 6, 1909; April 3, 1909; May 15, 1909; Aug. 14, 1909, and Sept. 4, 1909), eighteen cases have been reported by Gathelineau. Brocq described a severe form of poisoning due to this chemical; Balso reports a case of poisoning due to wearing hose which had been dyed with the chlorate of paraphenylene diamin, and Mewborn (The Journal A. M. A., May 18, 1901) reported a case of dermatitis from the use of a hair dye having this chemical for its base. This subject has also been discussed editorially in The Journal, Sept. 4, 1909, page 803.

PREPARATION OF SODIUM CACODYLATE SOLUTION FOR HYPODERMIC INJECTION

To the Editor:—Please give the formula for preparing sodium cacodylate solution as for hypodermic injection and the daily dose advised and your opinion as to its efficacy.

E. P. McGehee, Lake Village, Ark.

Answer.—Sodium cacodylate is readily soluble in water so that the desired dose, usually from ½ to 2 grains, can be given in an ordinary hypodermic syringe full of sterile water. Stock solutions should not be used, as they deteriorate readily, but the pharmacist should weigh out the desired dose for each administration and place it in a sterile bottle for use at the time of injection. Wholesale druggists furnish the drug in ampoules ready for use. J. B. Murphy advises an initial dose of from 2 to 4 grains, which should not be repeated within three or four days unless there are special indications for it. Other clinicians have given from ½ to 3 grains daily for a number of days. Probably it is better, as a rule, to allow an interval of three days. Clinical experience with sodium cacodylate in syphilis is not yet sufficiently extensive to enable a conclusive opinion regarding its efficacy to be formed.

MEDICAL WRITINGS OF OLIVER WENDELL HOLMES

To the Editor:—Kindly let me know through the "Queries and Minor Notes" column if the complete medical writings of Oliver Wendell Holmes are published in book form, and if so, by whom, the price, etc. Most of us have read extracts from Dr. Holmes' writings and the majority of us, perhaps, have a copy of his masterly paper on the infectious nature of puerperal sepsis filed away among our journals; but I, for one, should like to have such things in book form.

D. M. Molloy, Manila, P. I.

Answer.—The medical writings of Oliver Wendell Holmes have been published in one volume by Houghton, Mifflin & Co., Boston, under the title "Medical Essays." Price, $1.50.

The Public Service

Medical Department, U. S. Army

Changes during the week ended Aug. 12, 1911:

Boehs, Charles J., M.R.C., orders to Fort Porter, N. Y., for temporary duty revoked.

Ingalls, R. E., dental surgeon, left temporary duty at Fort Apache en route to Whipple Barracks, Ariz., for temporary duty.

Burket, John A., lieut., ordered to proceed from Fort Riley, Kan., to Fort Des Moines, Iowa, for temporary duty.

Moncrief, William H., captain, ordered to proceed from Fort Leavenworth, Kan., to Fort Sheridan, Ill., for duty with troops from post to Camp Perry, Ohio, and return to post instead of duty at Camp Port Huron, Mich.

Owen, Leartus J., captain, relieved from duty as inspector-instructor of the organized militia of Michigan, Aug. 9-18, 1911.

Blanchard, R. M., captain, detailed inspector-instructor, organized militia of Michigan, in camp Aug. 9 to 18, 1911, Port Huron, Mich.

Holmberg, Carl R., lieut., granted leave of absence for thirty days.

Wolven, F. Homer, dental surgeon, reported for temporary duty at Fort Gibbon, Alaska.

Winter, Francis A., major, will proceed to New York City for consultation with medical supply officer, in connection with purchase of medical supplies. On completion of duty to return to station.

Maus, L. Mervin, colonel, is granted leave of absence for one month and ten days on or about Aug. 21, 1911.

Gilchrist, Harry L., major, is detailed as instructor of sanitary troops at Camp Nevada, Mo., Aug. 20, 1911. On conclusion of encampment will return to his station.

Duncan, Louis C., captain, on arrival at San Francisco, will proceed to the Presidio and report to commanding officer, General Hospital, for duty.

Billingslea, Charles C., captain, when relieved by Captain Duncan, will proceed to Columbus Barracks, Ohio, for duty.

Phalen, James M., captain, is relieved Oct. 1, 1911, at Columbus Barracks, Ohio, and will proceed to New York City as attending surgeon.

Brewer, Isaac W., M.R.C., on arrival at San Francisco, will proceed to Fort Niagara, N. Y., for duty.

Smith, Herbert H., M.R.C., on his arrival at San Francisco, will proceed to Fort Lincoln, N. Dak., for duty.

Boards of officers to meet on September 1 for examination of applicants for acting dental surgeons are appointed as follows:

Fort Slocum, N. Y.: Wadhams, Sanford H., major; Boak S. Davis, dental surgeon; Tignor, Edwin P., dental surgeon.
Columbus Barracks, Ohio: Fisher, Henry C., lieut.-col.; Mason, George L., dental surgeon; Bernheim, Julien R., dental surgeon.
Jefferson Barracks, Mo.; Howard, Deane C., *major*; Voorhees, Hugh G., dental surgeon; McAlister, John A., dental surgeon.
Fort Logan, Colo.: Shook, Jay Ralph, major; Lauderdale, Clarence E., dental surgeon; Wing, Franklin F., dental surgeon.
Fort McDowell, Cal.: Brooks, William H., major; Hess, John H., dental surgeon; Chambers, William H., dental surgeon.

Truby, W. F., *major, granted two months' leave of absence.*

Kerr, Robert W., lieut., granted leave of absence for two months.

Marietta, S. U., M.R.C., ordered to active service and assigned to duty, Aug. 23, 1911, to Fort Sheridan, Ill.

Medical Corps, U. S. Navy

Changes for the week ended Aug. 12, 1911.

Taylor, J. L., P. A. surgeon, detached from the naval hospital, Norfolk, Va., and ordered to the naval hospital, Las Animas, Colo., for treatment.

Kelley, H. L., P. A. surgeon, detached from the naval hospital, Mare Island, Cal., and ordered to the Navy yard, Mare Island, Cal.

Hoyt, R. E., P. A. surgeon, detached from the Navy yard, Mare Island, Cal., and ordered to the Navy recruiting station, Los Angeles, Cal.

Bunker, C. W. O., P. A. surgeon, ordered to duty at the naval hospital, Mare Island, Cal.

Parham, J. C., asst.-surg., ordered to duty at the naval hospital, Philadelphia.

Zalesky, W. J., P. A. surgeon, detached from the *Franklin* and ordered to the Navy yard, Charleston, S. C.

Howard, J. V., P. A. surgeon, detached from the *Supply* and ordered to the naval station, Guam, P. I.

Abernathy, R. T., pharmacist, detached from the naval hospital, Las Animas, Colo., and ordered to the naval hospital, Washington, D. C., for observation and treatment.

Stuart, M. A., P. A. surgeon, detached from the Navy yard, Charleston, S. C., and ordered to the *Franklin*.

U. S. Public Health and Marine-Hospital Service

Changes for the week ended Aug. 9, 1911.

Trask, J. W., asst. surg.-gen., granted twenty-six days' leave of absence from Aug. 8, 1911.

Austin, H. W., surgeon, granted one day's leave of absence, Aug. 6, 1911, under paragraph 189, Service Regulations.

Williams, L. L., surgeon, granted three days' leave of absence from Aug. 6, 1911, under paragraph 189, Service Regulations.

Mathewson, H. S., P. A. surgeon, relieved from duty at Fort Stanton, N. Mex.

McMullen, John, P. A. surgeon, granted twenty-one days' leave of absence from Aug. 7, 1911.

Robinson, D. E., P. A. surgeon, granted twenty-one days' leave of absence from Aug. 12, 1911.

McLaughlin, A. J., P. A. surgeon, directed to proceed to Providence, R. I., from Boston, Mass., and on completion of duty enjoined to return to Boston.

Lloyd, B. J., P. A. surgeon, granted two days' leave of absence, July 28-29, 1911.

Rucker, W. C., P. A. surgeon, granted seven days' leave of absence en route to rejoin station.

Smith, F. C., P. A. surgeon, to assume temporary charge of Fort Stanton, N. Mex.

Duffy, B. J., asst.-surg., granted seven days' leave of absence from Aug. 12, 1911.

Clarke, F. M., A. A. surgeon, granted ten days' leave of absence, with pay, from Aug. 5, 1911, and fifteen days' leave of absence, without pay, from Aug. 15, 1911.

Earl, F. D., A. A. surgeon, granted two days' leave of absence, July 30-31, 1911.

Richter, H. C., A. A. surgeon, granted thirty days' leave of absence from Aug. 1, 1911.

Savage, W. L., A. A. surgeon, granted thirty days' leave of absence from Aug. 8, 1911.

Simonson, G. T., A. A. surgeon, granted two days' leave of absence, Aug. 4-5, 1911.

Storrs, H. R., A. A. surgeon, granted seven days' leave of absence, without pay, from Aug. 3, 1911.

Walker, H. D., A. A. surgeon, granted twenty-five days' leave of absence, without pay, from Aug. 7, 1911.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

IOWA: Capitol Building, Des Moines, September 19-21. Sec., Dr. Guilford H. Sumner.

MASSACHUSETTS: State House, Boston, September 12-14. Sec., Dr. Edwin B. Harvey.

MISSOURI: Kansas City, September 25-27. Sec., Dr. Frank B. Hiller, Jefferson City.

NEW YORK: September 26-29. Mr. Harlan H. Horner, Chief of Examinations Division, Department of Education, Albany.

Wisconsin May Report

Dr. John M. Beffel, secretary of the Wisconsin Board of Medical Examiners, reports the written and oral examination held at Milwaukee, May 24-26, 1911. The number of subjects examined in was 22; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 69, of whom 68 passed and 1 was conditioned. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Northwestern University Medical School	(1872)	84.
Rush Medical College	(1911)	87.
Bennett Medical College	(1911)	81.
Kentucky School of Medicine	(1893)	81.
American Medical College, St. Louis	(1897)	81.
Marquette University, Milwaukee, (1909) 75; (1910) 75, 75, 85; (1911) 75, 76, 76, 77, 77, 78, 79, 79, 79, 80, 80, 80, 80, 81, 81, 81, 81, 81, 81, 82, 82, 82, 82, 83, 83, 83, 83, 83, 84, 84, 84, 85, 85, 86, 86, 86, 87, 87, 88.		
Wisconsin College of Physicians and Surgeons, (1910) 83; (1911) 75, 75, 77, 78, 79, 80, 80, 80, 81, 81, 82, 85, 85, 85, 86, 86.		
Western University, London, Ontario	(1909)	79.
Queen's University, Kingston, Ontario	(1902) 76; (1911)	80.

CONDITIONED

College	Year Grad.	Per Cent.
Marquette University, Milwaukee	(1911)	72.*

* Conditioned in pathology and neurology.

Ohio June Report

Dr. George H. Matson, secretary of the State Medical Board of Ohio, reports written and practical examination held at Columbus, June 6-8, 1911. The number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 162, of whom 152 passed and 8 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Baltimore Medical College	(1911)*	
Harvard University Medical School	(1911)	85.1
University of Michigan, Homeopathic College	(1911)	84.6
Johns Hopkins University	(1910) 87; (1911)	79.3, 82.5
Bellevue Hospital Medical College	(1876)	76.
Ohio-Miami Medical College, (1910) 77; (1911) 75.1, 76, 76.7, 77.5, 77.5, 79.8, 79.9, 80, 80.4, 80.5, 80.9, 81.1, 81.1, 81.6, 81.7, 81.7, 81.8, 82.8, 83, 83.1, 83.1, 83.4, 83.4, 83.6, 83.6, 83.7, 83.8, 84, 84, 84.8, 86.5.		
Eclectic Medical College, Cincinnati. (1908) 78; (1911) 76, 76.4, 78.7, 79, 81.6, 84.7, 84.9.		
Starling-Ohio Medical College, (1911) 75, 75, 75.8, 76.1, 76.1, 77, 77.9, 78, 78.1, 78.4, 79.4, 79.9, 80.4, 80.6, 80.8, 80.9, 81.2, 81.4, 81.5, 81.6, 81.6, 81.9, 82, 82, 82.2, 82.4, 82.5, 82.5, 82.6, 83.3, 83.4 83.6, 83.7, 83.8, 83.9, 84, 84, 84.1, 84.4, 84.6, 84.6, 84.7, 84.9, 84.9, 85, 86.6, 86.7, 87, 88.3, 89.		
Western Reserve University, (1911) 78.1, 80.3, 81.2, 82.6, 83.1, 83.5, 83.8, 85, 85.1, 85.8, 86.2, 89.3, 89.7.		
Cleveland College of Physicians and Surgeons, (1908) 83.5; (1911) 75, 78, 78.8, 78.9, 79.3, 79.5, 80.5, 81.3, 81.5, 81.5, 81.5, 81.8, 82.6, 82.6, 83, 83.4, 84, 84.1, 84.8, 85.2, 85.9.		
Toledo Medical College, (1911) 79, 80, 80.1, 80.1, 80.3, 81, 81.6, 86.3.		
Cleveland-Pulte Medical College, (1911) 77.2, 77.6, 78.1, 79, 79.1, 81.9, 83.4.		
Jefferson Medical College	(1910)	77.5
University of Pennsylvania	(1905)*	
Western University, London, Ontario	(1910)	78.6
University of Berne, Switzerland	(1900)*	
Royal College of Physicians and Surg., Glasgow†	(1898)	

FAILED

College	Year Grad.	Per Cent.
Starling-Ohio Medical College	(1911)	70.7
Ohio-Miami Medical College	(1911)	73.9
Eclectic Medical College, Cincinnati, (1910) 59.4,	(1911)	73, 73.8
Cleveland-Pulte Medical College	(1910)	70.4
University of Tennessee	(1907)	73.8
Lincoln Memorial University, Medical Department	(1911)	72.6

* Percentage not given.

† Not a medical school but an examining body.

Wyoming June Report

Dr. J. B. Tyrrell, secretary of the Wyoming State Board of Medical Examiners reports the written examination held at Laramie, June 6-8, 1911. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75, and not less than 60 in any one branch. The total number of candidates examined was 2, both of whom passed. Eight candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Grad. Year	Cent. Per
Western Reserve University	(1902)	85.2
Marquette University	(1910)	85.6

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Colorado	(1910)	Colorado
Chicago College of Medicine and Surgery	(1910)	Illinois
Kansas Medical College	(1909)	Kansas
University of Kansas	(1909)	Kansas
Detroit College of Medicine	(1906)	Michigan
University of Michigan, College of Medicine	(1889)	Illinois
Cornell University Medical College	(1910)	Illinois
Medical College of Ohio	(1908)	Ohio

Delaware June Report

Dr. H. W. Briggs, secretary of the Medical Council of Delaware, reports the written examination held at Dover, June 20-22, 1911. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 15, all of whom passed. Three candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
George Washington University	(1905)	88
Chicago College of Medicine and Surgery	(1911)	81.6
Baltimore Medical College	(1910) 79.2; (1911)	88.1
College of Physicians and Surgeons, Baltimore	(1911)	81 6
University of Maryland	(1910)	84.5
Medico-Chirurgical College of Philadelphia	(1911)	82.5
University of Pennsylvania	(1911)	87.9
Jefferson Medical College	(1911)	79, 81.5, 82.4, 82.9, 85.6, 92.2
Woman's Medical College of Pennsylvania	(1911)	79.4

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Maryland	(1882)	Maryland
Medico-Chirurgical College of Philadelphia	(1907)	Penna.
Western Pennsylvania Medical College	(1903)	Penna.

Washington July Report

Dr. F. P. Witter, secretary of the Board of Medical Examiners of the State of Washington, reports the written and practical examination held at Tacoma, July 5-8, 1911. The number of subjects examined in was 11; total number of questions asked, 100; percentage required to pass, 75, and not less than 60 in any one subject. The total number of candidates examined was 85, of whom 53 passed, including 1 osteopath, and 29 failed, including 4 osteopaths. Three candidates did not complete the examination. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Colorado	(1901) 76; (1911)	75
George Washington University	(1907)	78
Yale University	(1908)	76
Hahnemann Medical College and Hospital, Chicago	(1911)	81
Coll. of Phys. and Surgs., Chicago	(1883) 80; (1909)	85
Northwestern University Medical School (1909) 77, 84, 90; (1910) 75; (1911) 77, 81.		
Chicago Homeopathic College	(1901)	79
Rush Medical College	(1901) 85; (1909	86
University of Iowa, College of Medicine	(1910)	77
Tulane University of Louisiana	(1908)	78
University of Maryland	(1901)	81
Baltimore Medical College	(1907)	80
Harvard University Med. School	(1907) 80; (1908)	84
Tufts College Medical School	(1908)	75
Univ. of Mich., Dept. of Med. and Surg.	(1909) 78; (1910)	78
University of Michigan, Homeopathic College	(1897)	81
Hamline University	(1908)	75
Univ. of Minnesota, Coll. of Med. and Surg	(1909)	81
University Medical College, Kansas City	(1897)	83
Barnes Medical College	(1905)	77, 82
Washington University, St. Louis	(1910)	75
Creighton Medical College	(1910) 75; (1911)	75
University of Buffalo	(1910)	79
Columbia Univ. Coll. of P. and S.	(1903) 77; (1911)	80

Bellevue Hospital Medical College	(1896) 78; (1898)	82
Medical College of Ohio	(1909)	82
University of Oregon	(1910)	77
Western Pennsylvania Medical College	(1911)	82
University of Pennsylvania	(1899)	79
Medico-Chirurgical College, Philadelphia	(1896)	86
University of Virginia	(1906)	75
Milwaukee Medical College	(1910)	78
Queen's University, Kingston, Ontario	(1907)	84
University of Toronto, Ontario	(1910)	80
Trinity Medical College, Ontario	(1901)	79, 82
University of Geneva, Switzerland	(1911)	76
London School of Medicine for Women	(1900)	81
FAILED		
Northwestern University Medical School	(1910)	66
Hahnemann Medical College and Hospital, Chicago	(1888)	56
Rush Medical College	(1899) 65; (1901)	76
Bennett Medical College	(1910)	24
Indiana Medical College	(1907)	73
Iowa College of Physicians and Surgeons	(1897)	65
Drake University	(1900)	62
University of Louisville	(1911)	68
Southwestern Homeopathic Med. Coll., Louisville	(1909)	58
Medical School of Maine	(1909)	65
Baltimore Medical College	(1910)	68
Tufts College Medical School	(1906)	61
University Medical College, Kansas City	(1898)	74
Barnes Medical College	(1907)	55
St. Louis University	(1910)	71
Washington University, St Louis	(1904) 70; (1911)	70
Creighton Medical College	(1911)	62
Eclectic Medical College, Cincinnati	(1911)	59
Pulte Medical College	(1891)	75
Willamette University	(1909)	64
University of Oregon	(1911)	70
McGill University, Quebec	(1909)	74
Trinity Medical College, Ontario	(1903)	71

Connecticut Homeopathic July Report

Dr. Edwin C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports that at the meeting held July 11, 1911, 1 candidate, a graduate of the New York Homeopathic Medical College and Hospital, 1899, was licensed through reciprocity with New Jersey.

Book Notices

Ueber Scharlach (der Scharlacherkrankung zweiter Teil). Von Dr. Dionys Pospischill, k. k. Primararzt, und Dr. Fritz Weiss, gew. Assistent der Abteilung. Paper. Price, 5 marks. Pp. 147. Berlin: S. Karger, Karlstrasse 15, 1911.

The authors have had enormous experience with scarlet fever. This work is based on the study of 3,605 cases seen within the six years ending with 1909 and especially on 2,605 cases seen during the last thirty-five months of that time. During these and previous years the authors have gathered a number of deep-rooted impressions and convictions about scarlet fever, and they express these with an earnestness and a fervor that is rather unusual in a scientific treatise. Only a single page is devoted to statistics. The authors aim rather to record their views which are the results of years of careful clinical observation. Pathology, bacteriology, hematology, etc., remain almost untouched—the work is essentially a clinical treatise.

This pamphlet is devoted wholly to what the authors call *das zweite Kranksein*, i. e., the second manifestation of illness in scarlet fever that occurs after the primary symptoms have abated or disappeared. This *zweite Kranksein* is not a complication, or a new illness; it is an integral part of the scarlet fever process. The symptoms when present are, in order of frequency, one or more of the following: (1) fever; (2) adenitis; (3) angina; (4) nephritis; (5) scarlet fever heart.

Special attention is given to nephritis and to the severe types of scarlet fever. Before the latter, the authors feel utterly helpless in affecting its course. In two series of 1,186 cases, each of the children kept on a milk diet on the one hand and on a general diet including rest; on the other hand, there was a difference of 1/6 of 1 per cent. in the number of cases of nephritis that developed. Mastoiditis, the authors state emphatically, should never be operated on radically. Moser's serum they consider of value.

The book is interesting alike to the student and practitioner of limited experience with scarlet fever, and to the specialist who has seen a great deal.

Medical Revolution. A Plea for National Preservation of Health Based on the Natural Interpretation of Disease: By Sydney W. Macilwaine, M.R.C.S., L.R.C.P. (Retired). Cloth. Price, 2 shillings 6 pence. Pp. 162. London: P. S. King & Son, Orchard House, Westminster, 1911.

This little book is a plea for a national preservation of health based on the natural interpretation of disease and is dedicated to the "intelligent and puzzled layman, to medical officers of health and general practitioners and to medical students to whom belong the future of our profession." The emphasis laid by the writer on prevention rather than cure is another indication of the rapidly changing views regarding the function of the medical profession. Probably the most suggestive and practical chapter is that on organization, in which Macilwaine pleads for a systematic and intelligent effort to make the collective experience of the entire medical profession of value to each member. After discussing the enormous practical experience of individual physicians at the end of long years of service, and of the profession in the aggregate, he says, "We have no organization for the collection, digesting and systematizing of experiences. The vast bulk of our raw material is deliberately allowed to die unorganized and unrecorded with the individual practitioner." His remedy is simple. "There must be created a central body of experienced men who shall collect information from the whole profession bearing on the causation of disease. This information they will systematize and redistribute regularly to every member of the profession. As soon as our knowledge of any particular disease was definite enough for the purpose it would be drafted into a permanent shape and also distributed to the profession. In this way the foundation of the ultimate text-book of medicine would be made. It would represent the accumulated and systematized experience of the whole profession. It would be comprehensive and would furnish the practitioner at last with a complete and reliable book of health." It is interesting to note in this connection that much the same plan of collecting data from each member of the profession was proposed in the American Medical Association over fifty years ago but has never been developed into a practical working scheme. The book is of interest as an evidence of the changing attitude of the medical profession in England. Evidently our English brethren are going to lead the way in the inevitable socialization of the medical profession.

Clinical [illegible] l Reference to Life-Threatening [illegible] By Alois Pick, Professor of M[illegible] and Adolph Hecht, Pediatrician, St. Anne's Hospital, Vienna. An Authorized Translation Under the Editorial Supervision of Karl Konrad Koessler, M.D. (Univ. of Vienna), Instructor of Clinical Medicine, Rush Medical College, in Affiliation with the University of Chicago. Cloth. Price, $6 net. Pp. 833. New York: D. Appleton & Co., 1911.

The systematic grouping of the several diseases and pathologic conditions which may produce a given symptom, forms a valuable method for teaching differential diagnosis. Such a study enables the student to construct a mental cross-index to his store of facts concerning disease, and trains him in orderly habits of thought.

In this work Pick and Hecht discuss symptoms, such as vomiting, headache, pain in the chest, jaundice, etc., and after describing the mechanism by which the symptoms are produced, suggest appropriate therapeutic measures. This proposal of the authors to combine treatment with diagnosis is commendable. The diseases for which we possess specific remedies are relatively few in number, and treatment must often consist in alleviating the more distressing complaints of the patient. The study of symptoms offers a favorable opportunity for the discussion of rational therapy based on the pathologic condition present.

The opening chapter deals with general symptoms including nutritional and developmental anomalies, with a full discussion of the theories of the production of fever. The section on disturbance of heart action contains many valuable suggestions on treatment. We commend specially the chapters on dyspnea and pain in the chest. The space devoted to abdominal pain is rather limited, considering the importance of the subject. The subject of jaundice, too, deserves a more thorough consideration than is accorded to it by the authors. The chapter on the symptomatology of poisoning by chemical agents will prove of interest.

The translator has adhered closely to the subject-matter of the German edition. The inverted sentence is employed rather more frequently than is consistent with idiomatic English. Typographic errors are rare.

The book contains much that is valuable to the student, and to the clinical instructor who wishes to present his subject from a new point of view.

INTERNAL SECRETIONS FROM A PHYSIOLOGIC AND THERAPEUTIC STANDPOINT. By Isaac Ott, A.M., M.D., Professor of Physiology in the Medico-Chirurgical College of Philadelphia. Cloth Price, $1. Pp. 133, with illustrations. Easton Pa.: E. D. Vogel, 1910.

In these lectures Dr. Ott has undertaken to present a succinct account of the recent facts accruing from the study of the physiologic and pathologic action of the glands with internal secretion. The first and second lectures deal with individual glands, the parathyroids and the pituitary, the third with the correlation of such glands in the economy. Perhaps no better example of the nice adjustments of the animal economy can be produced than the action of the adrenals in producing a definite chemical substance, one-millionth of a grain of which raises blood-pressure and an excess of which might have very deleterious effects. The quantity and action of this secretion is so carefully regulated, however, that no harmful results arise in the normal animal. The study of the parathyroids brings out the records of a good deal of personal work on the part of the author. He found that tetany was due to a poison in the blood, but not entirely to loss of calcium. He found that the pituitary gland is able to some extent to compensate for failure of parathyroid function. In the second lecture, a more detailed study of the pituitary is made and some therapeutic deductions drawn. The author attributes acromegaly to hyperhypophysy and infantilism to hypohypophysy. He found that in experimental work none of the artificial preparations have as much power as the gland itself. The third lecture compares the action of the various glands and lays the foundation for the therapeutic deduction that overaction of one gland is to be controlled by giving the substance or secretion of another gland to counteract the effect of the first. A considerable number of therapeutic conclusions are here collected which naturally add to the interest of the work to the practicing physician. The book is quite profusely illustrated by a number of charts and tracings. Only a careful reading will disclose the full value of the facts which recent studies of the ductless glands have brought to light. Such a perusal we bespeak for this monograph.

LEHRBUCH DER [illegible] beitet von Prof. Dr. Feer, Heidelberg; [illegible] erlin; Priv.-Doz. Dr. Ibrahim, München; [illegible] Prof. Dr. Moro, München; Prof. Dr. Vc [illegible] Dr. Pfaundler, München; Prof. Dr. Thiemich, Magdeburg: Priv.-Doz. Dr. Tobler, Hei- [illegible] Prof. Dr. E. Feer, Direktor der Univ.- [illegible] Paper. Price, 11.50 marks. Pp. 734, [illegible] Gustav Fischer, 1911.

This is a composite book, but the names of the contributors are an evidence that the editor selected men of authority to discuss the various subjects. Thus, Finkelstein and Meyer write on nutritional disorders and diseases of the new-born; Pfaundler, on blood, constitutional and metabolic disturbances; von Pirquet, on tuberculosis and diseases of the respiratory tract; Moro, on syphilis and dermatology; Feer, on heart diseases and acute infectious diseases; Ibrahim and Tobler, respectively, on diseases of the nervous and genito-urinary systems, while Thiemich contributes a valuable introductory chapter of 100 pages on general considerations, anatomy, physiology, nutrition and hygiene, examination, symptomatology, pathogenesis, prophylaxis and therapy. The continuity and unity of the book are not disturbed because each author discusses a complete subject.

The illustrations are abundant, original, well chosen and well executed. The book is exhaustive in spite of its size, partly because of its conciseness and partly because of the fact that it treats briefly the diseases which are common to child and adult and fully those which are peculiar to the child. For this reason infancy receives the largest share of attention.

THREE THOUSAND YEARS OF MENTAL HEALING. By George Barton Cutten, Ph.D. (Yale), President of Acadia University. Cloth. Price, $1.50 net. Pp. 318, with illustrations. New York: Charles Scribner's Sons, 1911.

This is a general historical review of mental healing. As the author intimates in the preface, many people nowadays are misled into believing that the recent mental healing movements are new in origin and in principle, simply and solely because they are ignorant of similar movements in the past. The author's object in writing this book was to show, on the contrary, that such movements as those known as Mormonism, Dowieism and Eddyism—mental healing combined with religious vagaries—are merely repetitions of similar movements in bygone ages, and that such individuals as the "Mountain Evangelist," George O. Barnes, Father Mathew and Francis Schlatter (the latter only the other day was attracting thousands of intelligent people to Denver who stood in line for hours to receive his magic touch and be healed) present characteristics which are to all intents and purposes the same as those of "healers" and leaders of cults hundreds and thousands of years ago.

The author is not a physician; he is president of Acadia University (Nova Scotia) and writes from the point of view of an intelligent layman. He discusses briefly, but philosophically, the different individuals, movements and fads of the past—relics, talismans, amulets, charms, royal touch, mesmerisms, etc., leading up to the final chapter, "The Healers of the Nineteenth Century." He recognizes that there has been, and is, an element of truth underlying all these things—the influence of the mind on the body.

When one has read this book one will be forced to acknowledge that with all our boasted civilization, with all our education and intelligence, the average human being of to-day is just as susceptible to imposition, just as easily led astray, and just as superstitious, as was the average human being one, two or three thousand years ago; also that ordinary common sense and logical reasoning are as foreign to the modern individual who is carried away with some fad or fancy that is cloaked in mystery or befogged with the supernatural, as they were to the individual human being one thousand years before Christ.

EDUCATION: HOW OLD THE NEW. By James J. Walsh, M.D., Dean and Professor of the History of Medicine and of Nervous Diseases at Fordham University School of Medicine. Cloth. Price, $2 net. Pp. 459. New York: Fordham University Press, 1910.

This volume contains eleven lectures and addresses. Of particular interest are the chapters on "The First Modern University"—that of Alexandria—"Ideal Popular Education," and "The Medical Profession for Six Thousand Years." Dr. Walsh shows in his interesting style that high ideals in education are not solely the product of recent decades, but were held and to a great extent fulfilled in ancient times. He shows also that much information of value may be obtained from a study of the history of education. In fact, he shows that the standards of medical education of a few decades ago were far inferior not only to those held centuries ago, but also to those long held by the Spanish-American universities of Mexico and South America. This book is well worth reading, and will be a valuable addition to the library of any one who desires a broad outlook on the subject of modern education.

REFRACTION AND MOTILITY OF THE EYE. With Chapters on Color-Blindness and the Field of Vision. Designed for Students and Practitioners. By Ellice M. Alger, M.D., Adjunct Professor of Ophthalmology at the New York Postgraduate Medical School. Cloth. Price, $1.50 net. Pp. 376, with 122 illustrations. Philadelphia: F. A. Davis Co., 1910.

This useful compend, now a year old, has found favor with students of refractive errors and of oculomuscular anomalies. Beginning with a chapter on optics the author furnishes a good account of the fundamental principles of the reflection and refraction of light, especially in their relation to the physiology of the eye. This is followed by a description of the normal or emmetropic eye, of the ophthalmoscope and its uses, and by a fairly well-considered report on that important subject, retinoscopy, which, by the way, we would prefer to call "skiascopy." Then follow chapters on hyperopia, myopia, astigmatism, presbyopia, anisometropia, aphakia and binocular vision. Four good-sized sections of this text-book are devoted to the normal motility of the eye-ball and to the causes, diagnosis and treatment of its abnormal variations—heterophoria and heterotropia.

The subjects strabismus, squint and ocular paralysis (the writer apparently makes no distinction between "paresis" and "paralysis"), their causes, detection and cure, are also described in a manner very helpful to the student.

Just why, in a small work of this sort, chapters on color-blindness, the visual field and the relations of functional eye symptoms to general diseases are appended is not quite clear, unless it is held that every ocular interest may be regarded as more or less germane to the subject of refraction and heterophoria. The book is well made, fairly illustrated and has a capital index.

THE NERVOUS LIFE. By G. E. Partridge, Ph.D., Formerly Lecturer in Clark University. Cloth. Price, $1 net. Pp. 216. New York: Sturgis & Walton Co., 1911.

The author endeavors to point out some of the causes and conditions of the nervous, social and industrial life of our people as a whole, as well as the nervous life expressed in the temperament of the nervous individual. He holds that as the causes responsible for present conditions are rooted in the very heart of our national life and, indeed, of all social progress, the cure must be as profound and broad as the disease and must include the whole problem of education, mental and nervous hygiene and the personal problem of each individual. He endeavors to point out especially the psychologic causes and conditions of the nervous life and to suggest methods by which such conditions should be controlled. Chapters on biologic laws and self-knowledge serve as introductory. In Chapters 6 and 7, on the principles of control and the optimum life, the author defines his theory. The remainder of the book is devoted largely to discussing the practical means by which better conditions can be brought about. Food, exercise, rest and sleep, work and recreation are all discussed. The subject is one of vast importance and the book should be welcome as a contribution to a better knowledge of the complex conditions of modern life.

A TEXT-BOOK OF MEDICINE. For Students and Practitioners. By Dr. Adolf v. Strümpell, Professor of Special Pathology and Therapeutics at the University of Leipsic. Fourth American Edition. Translated by Permission from the Seventeenth Revised German Edition with Editorial Notes, Additional Chapters, and a Section on Mental Diseases, by Herman F. Vickery, A.B., M.D., Instructor in Clinical Medicine, Harvard University, and Philip Coombs Knapp, A.M., M.D., ex-President of the American Neurological Association. Cloth. In Two Volumes. Price, $12 net. Pp. 831 and 800, with 224 illustrations. New York: D. Appleton & Co., 1911.

It is twenty-five years since the first American edition of Professor Strümpell's text-book was published and ten years since the third American edition, translated from the fourteenth German edition, appeared. The present is the fourth American edition, corresponding to the seventeenth German edition. These facts are an evidence of the well-deserved popularity of this text-book, both in America and in Europe. The present edition has been brought well up to date by the addition of articles on the "fourth disease," Malta fever, Rocky Mountain fever and pellagra. The editors have also included a section on mental diseases, which are of interest to the general practitioner. The present edition, we are sure, will be accorded the same favorable reception as its predecessors.

A MANUAL OF THE DISEASES OF INFANTS AND CHILDREN. By John Ruhräh, M.D., Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Third Edition. Flexible leather. Price, $2.50 net. Pp. 534, with 173 illustrations. Philadelphia: W. B. Saunders Co., 1911.

Three editions in three years speaks well for a work of the size and scope of this. It is deservedly popular, inasmuch as it gives the busy practitioner a concise account of practically everything in this field. For a more detailed and discursive text larger works must be consulted. It is not intended to be more than a desk-book. Besides having revised the entire text, the author has added a dose-table of drugs, instructions for summer, the care of the mentally deficient, the blind and the deaf. The book is well illustrated by pictures and plates as well as charts.

Medicolegal

Right to Recover for Operation Followed by Death—Power of Wife to Bind Husband for Operation on Child

(French vs. Burlingame (Mo.), 134 S. W. R. 1100)

The St. Louis Court of Appeals here affirms a judgment for the plaintiff for the reasonable value of professional services rendered as a surgeon in performing an operation on the defendant's infant daughter, for which a charge of $100 was made. The defendant, father, resisted payment solely on the ground that the operation was performed without his knowledge or consent. The child, 9 years of age, was suffering with what was diagnosed as an abscess of the liver. The mother had brought the child to the city and was advised that an operation should be performed at once in order to permit the pus to escape, and thus save the patient's life. She agreed that the operation should be performed, and it was, at a hospital, on the following day, when it was said that as much as 2 quarts of pus were removed. It was conceded that the operation was performed with skill, and that the death of the child, which occurred a day or two afterwards, was caused by weakness resulting from the disease. It was in evidence on the part of the defendant that he had objected to an operation before his wife left home with the child, and said that one should not be performed, but that fact was not communicated to the plaintiff, who was informed only that the father objected to the child's being removed to St. Louis.

The defendant relied on the case of Detwiler vs. Bowers, 9 Pa. Super. Ct. 473, where it was said that a surgical operation of doubtful advantage was not a necessary for which a non-assenting father was liable on an order given to the surgeon by the wife. But the facts in that case were dissimilar from those in this one, for there the malady from which the child suffered and for which the operation was performed at the instance of the mother, without the knowledge and against the consent of the father, was a cancerous tumor, and the parents had been advised that the disease would immediately reveal itself again, though an operation were had. Indeed, this prediction proved to be true in that case, for, though several operations were had, each time the cancerous growth recurred. On those facts, the court deemed the operation so known to be of doubtful advantage as one not falling within the category of necessaries furnished the child for which the parent should answer.

Here the facts were entirely dissimilar, for naught in the case suggested that the malady—an abscess of the liver—might return if once removed, and it was conceded that its removal was the only remaining chance for the recovery of the child. The fact that the defendant objected to the child being removed from home and brought to St. Louis for treatment by the plaintiff was wholly unimportant in view of the further fact that, notwithstanding, he permitted the removal to be made.

The defendant having acquiesced in the act of his wife in bringing the little one to the plaintiff in St. Louis for treatment, the case must be viewed as though the wife was his agent for the purpose. No one can doubt the implied agency of the wife to pledge her husband's credit for necessaries for herself or his minor children according to the circumstances of the case. It is the law, too, that the father is liable for such reasonable necessaries of life as are compatible with his circumstances furnished to his minor child by third persons in case he neglects to supply them, and they are procured by the child, or even by a prior divorced wife, for it.

It was conceded that the only chance of saving the life of the child was the operation, which the plaintiff performed in a careful and skillful manner. The fact that the patient subsequently died without fault of the surgeon was wholly immaterial to the obligation of the defendant to pay the reasonable value of his services.

In these circumstances, the court can imagine nothing more highly necessary to the welfare of the child or more within the obligation of the parent than the services rendered, for it was the one and only hope of the little one's continued life to bless and cheer the parents. It was obvious, too, that this service was rendered at the instance and request of the defendant's wife, who possessed *prima facie* authority to bind him for such necessaries as were furnished to herself or his minor children. Infection was present and about to progress. The mother, unattended, except by the family physician, but with the father's consent, was in a great city with their child dangerously ill, seeking some measure of relief. So situated, was the mother to await communication with her husband at a distant part of the state, while the spell of almost immediate dissolution hovered over the little one, before asserting her authority to commit him to respond as for necessaries in compensation of services which offered the one chance for its life? The court answers no. It further says that the services rendered were in the circumstances of the case necessaries for which the law implied an obligation on the part of the father to pay when so performed at the instance and request of the mother. Every precept of natural justice suggests the liability of the defendant, and, if there is no precedent for sustaining the judgment, one should be established forthwith.

Incompetent Evidence to Fix Liability on Company for Services

(Chickasha Cotton Oil Co. vs. Lamb & Tyner (Okla.), 114 Pac. 333)

The Supreme Court of Oklahoma reverses, for errors in the admission of evidence, a judgment recovered in this case against the oil company, by the latter-named parties, for services rendered as physicians to a wounded employee. The plaintiffs sought to fix liability on the company for their services by showing that the company's manager sent for them and requested that they render the services. Over the company's objection, they were permitted to testify that the person who called for them at the time of the accident stated that he had been sent by the president or manager of the company. But there was an entire absence of any other evidence in the record to show that the person who made this statement was in any way the agent of the company, or had been sent by its manager, and it is held that statements made in the absence of the defendant by the messenger, who was not shown to be the company's agent, could not bind the company, and were objectionable as hearsay testimony.

The company's defense was that its manager had not ordered the services of the plaintiffs; and that, if he had done so, he was without authority to bind the company in the premises. The company offered to prove by the manager that he was without such authority; but his testimony relative thereto was rejected by the trial court. That such testimony was competent seems plain; it bore directly on the issues of defense made by the company's answer. The burden was on the plaintiffs, under the issues formed by the pleadings, not only to show that the company's manager requested them to render the services for which they sought to recover, but also that he was acting within his authority as the agent of the company; and evidence by the company's officer who knew his authority was competent to contradict evidence offered by the plaintiffs in support of this issue.

It was also error to permit the plaintiffs to testify in their own behalf as to a conversation had between them and one Morrison, in which he made statements tending to show the admission by the company of its liability to the plaintiffs for their claim. They testified that he had asked them if they were still looking to the company, and, on being told that they were, said to them that they had better see the company about standing for any more of the bill; that the company had some money on hand that it expected to pay on the plaintiff's bill, but, before the plaintiffs did anything else, they had better see the company, as their bill was much more than the company was expecting anyhow. Morrison was an employee of the company, but to render the admissions of an agent admissible against his principal it must first be shown by competent evidence that such admissions were made in and as a part of the agent's performance of his duties and within the scope of his authority, which the record did not show in this case.

Physical Examinations of Policemen and Plaintiffs

(People ex rel. Wayman vs. Steward (Ill.), 94 N. E. R. 511)

The Supreme Court of Illinois holds that a rule making it the duty of the superintendent of police of the city of Chicago to ascertain, by physical and medical examinations conducted under his direction from time to time by a board of physicians, whether active patrolmen are able to perform the duties required of them, to the end that he may make assignments of patrolmen to such duties as they shall be physically able to perform, and that if any are permanently or totally incapacitated he may prefer charges of physical incapacity against them before the Civil Service Commission, does not violate the constitutional provision: "The right of the people to be secure in their persons, houses, papers and effects, against reasonable searches and seizures, shall not be violated." Courts have never looked on a physical examination to determine the fitness of a person for a particular service as a search, within the meaning of the constitutional provision. The case of a policeman is like that of a soldier, where physical ability is necessary and material part of an examination. It is not contended that the superintendent has authority forcibly to make, or cause to be made, a physical examination of a member of the police department. If a policeman does not choose to submit to the examination and to abide by the rules and regulations of the department, he merely commits the offense of disobeying the superintendent, and subjects himself to a charge of that kind before the Civil Service Commission.

An argument was drawn from the rule of this court that in a civil suit the court has no power to compel a physical examination of a party to the suit, but there is no similarity between the two cases, nor is there any claim that the superintendent may compel the examination of a policeman. Besides the rule that the court cannot compel an examination of a party does not rest on immunity, under the Constitution, from an unreasonable search. There is no doubt that a statute might be enacted requiring a party to submit to an examination as a condition of maintaining the suit, and many courts have held that such an examination either rests in the discretion of the court, or may be demanded by the opposite party as a matter of right.

In any view of the case, the court cannot see how it can be said that the superintendent of police is compelled by the Constitution to remain in ignorance of the physical capacity of policemen to perform the duties required of them, with the necessary consequence that the policemen may retain positions which they are incapacitated to fill and draw salaries for services they are unable to perform. Even if the examinations conducted for the purpose of ascertaining the facts should be characterized as searches of the person, they cannot be considered unreasonable.

Form of Action and Liability for Malpractice—Expert Testimony

(Carpenter vs. Walker (Ala.), 54 So. R. 60)

The Supreme Court of Alabama affirms here a judgment for damages for alleged malpractice in the setting and treating of a compound fracture of the forearm for a boy whereby it was charged that he lost his arm. It says that the action against a physician for malpractice need not be based on a contract, though it may be, and usually is. It is sufficient if based on his legal obligation. The action for malpractice is essentially in tort (for wrongdoing), and hence it is immaterial by whom the physician is employed. While a physician or surgeon may, under the same state of facts, be liable both *ex contractu* and *ex delicto*, or on contract and for breach of duty, yet the plaintiff has the option to declare against him in either form; but prior to the present Alabama Code he could not declare in both in the same action. As to the duty, care and skill required of physicians and surgeons, the rule (as twice before announced) is as follows: "the reasonable and ordinary care, skill and diligence which the law requires of physicians and surgeons in the same general neighborhood, in the same general line of practice, ordinarily have and exercise in a like case."

There was no error in allowing the question to be propounded to a medical witness, "whether it was reasonable prudence on the part of a surgeon setting a broken limb to leave the patient for ten days without any one trained in treating wounds, and with instructions to his parents that he need not be sent for unless the hand turned black." There was evidence justifying the hypothesis put; and it was not a substitution of the witness for the jury, but was to afford them the benefit of an expert's opinion as to whether that kind of treatment was reasonable prudence.

Nor was there error in instructing the jury that if they believed from the evidence that the plaintiff broke his arm, and that the defendant was employed by the plaintiff's father (plaintiff being a minor) to treat and attend the same as a physician and surgeon, and entered on and undertook such employment, and did set or dress or treat the plaintiff's said arm as a physician or surgeon, and assumed charge of the same, then the plaintiff was entitled to receive from the defendant the care, attention and skill of an ordinarily skilled physician and surgeon. And if the jury believed that the plaintiff did not receive from the defendant such care, attention and skill, and that in consequence of not receiving the same, and without fault on the plaintiff's part, or on the part of any one else, suffered increased pain, suffering and injury, then the jury were instructed that the defendant was liable, and the jury would render a verdict for the plaintiff, and would assess his damages found from all the evidence, not exceeding the amount claimed by the plaintiff in his complaint.

Society Proceedings

COMING MEETINGS

Amer. Acad. of Ophthal. and Oto-Laryngol., Indianapolis, Sept. 25-27.
Amer. Assn. of Obstet. and Gynecol., Louisville, Ky., Sept. 26-28.
American Electro-Therapeutic Association, Philadelphia, Sept. 6-7.
American Roentgen Ray Society, Richmond, Va., Sept. 20-23.
American Urological Association, Chicago, Sept. 26-27.
Assn. of Military Surgeons of United States, Milwaukee, Sept. 26-29.
Indiana State Medical Association, Indianapolis, Sept. 28-29.
Medical Society of the Missouri Valley, Omaha, Neb., Sept. 7-8.
Michigan State Medical Society, Detroit, Sept. 27-28.
New Mexico Medical Society, Las Vegas, Sept. 6-9.
Pennsylvania State Medical Society, Harrisburg, Sept. 25-28.
Washington State Medical Association, Spokane, Sept. 5-7.
W. Va. State Med. Assn., White Sulphur Springs, Sept. 20-22.
Wyoming State Medical Society, Thermopolis, Sept. 4-5.

AMERICAN OPHTHALMOLOGICAL SOCIETY

Forty-Seventh Annual Meeting, held at New London, Conn., July 11-12, 1911

(Concluded from page 680)

Sarcoma of the Chorioid; Neuromata of the Ciliary Nerves

Prof. E. Fuchs, Vienna: I believe these to be the smallest specimens of sarcoma of the chorioid hitherto known. There were three cases in all. In one, the sarcoma was so minute that it could not be seen by means of the ophthalmoscope.

The only positive evidence that these small tumors are sarcomas would be an aggressive and destructive growth, which could not be expected at such an early stage. The diagnosis must, therefore, be based on the character of the cells composing them.

In the first and third cases, the tumor was composed of closely packed spindle cells, with scarcely any pigment. In the second case, the pigment cells composing the tumor assumed in part a polygonal shape, and lay contiguous to one another, like spindle cells. We may learn from these cases that the sarcoma may originate in the layer of large vessels termed Keller's layer; it may be composed of spindle cells from the beginning, and deep pigmentation may be present from the very start. I have found neuromata in two atrophic eye-balls.

In both cases, the minute tumors were composed nearly exclusively of nerve-fibers; so that they were genuine neuromas, and not neurofibromas.

DISCUSSION

Dr. George E. de Schweinitz, Philadelphia: A few years ago, Dr. E. A. Shumway, of Philadelphia, and I showed two growths of the chorioid. Dr. Fuchs, in a recent paper on sarcoma, referred to these, and stated that we had left it open whether they were to be regarded as sarcomas or degenerated chromatophores. He has just pointed out that young sarcomas never form chromatophores. One of our cases was a melanoma, and the other a sarcoma of the chorioid.

Cases of Pulsating Exophthalmos Cured by Ligation of the Common and Internal Carotids

Dr. William H. Wilder, Chicago: Both cases were due to blows on the head. Exophthalmos was marked, but pulsation was very slight. In one case relief immediately followed ligation of the common carotid, and a permanent cure resulted. In the other case ligation of the common carotid gave relief from the bruit and the head noises, but the exophthalmos did not recede completely. A recurrence of the bruit and an increase in the exophthalmos took place two months after the ligation. The internal carotid of the same side was then ligated, with complete relief of all the symptoms, and the results have been permanent up to date. A slight impairment of speech and paresis of the left forearm followed ligation of the internal carotid.

DISCUSSION

Dr. Samuel D. Risley, Philadelphia: I should like to inquire whether, after the ligation of these arteries, if there were intra-ocular hemorrhages in either of the cases. Some time ago, I reported one instance in which, when I made an ophthalmoscopic examination, forty-eight hours afterward, I found extensive hemorrhages that had been absent before the operation.

Dr. Carl Fisher, Rochester, Minn.: Dr. Charles Mayo operated about a year ago in a similar case. This patient had had a pulsating exophthalmos of the left eye, for which a ligation of the common carotid had been done some time before. Through some accident, this eye had afterward been lost. Three years later, the patient developed pulsating exophthalmos of the right eye. The vision remained fair, but was slowly diminishing. Dr. Mayo clamped a stout tin spring around the vein. He then closed the artery as much as he could allowing vision to remain, so as to develop collateral circulation through the basilar arteries. It is hoped that enough collateral circulation may be developed to enable the woman to retain her vision.

Dr. Emil Gruening, New York City: I have had two cases of pulsating exophthalmos; both patients were operated on by ligation of the common carotid. There was almost immediate improvement of the sight, and no hemorrhage occurred.

Dr. William H. Wilder: There were no retinal hemorrhages in either of my cases. I should hesitate to ligate the ophthalmic vein until I had resorted to other procedures, as I should fear embolism somewhere in the body, particularly the brain.

Phantom Intra-Ocular Tumor

Dr. Arnold Knapp, New York City: The patient was a woman, aged 73, with protrusion of the left eye. Palpation at the margin of the orbit was negative, except at the upper inner angle, where a nodular pulsating mass was felt. The optic nerve was normal. The fundus showed arteriosclerosis of the vessels, with a few small hemorrhages; and below, in its periphery, there was a shallow detachment. The pupil was dilated, and there was a round, brownish swelling back of this on the temporal side. Tension was normal. The diagnosis of intra-ocular tumor with orbital extension seemed clear. The growth was thought to be a melanosarcoma of the ciliary body. Enucleation showed cystic degeneration of the retina, with distinct changes in the epithelium in the pars ciliaris retinæ. The tumor recognized clinically was presumably a large cyst or detachment, which ruptured when the eye was opened immediately after removal.

The Field of Vision in Tabetic Atrophy of the Optic Nerve

Prof. E. Fuchs, Vienna: Ybllhoff states that the cases of tabetic atrophy in which the field of vision presents a central scotoma constitute about 2 per cent. of all the cases of tabetic atrophy. According to my experience, they are more common; as I could pick out not less than thirty from the histories of my private patients alone. The common opinion is that the central scotoma is not a sequela of the tabes, but is to be considered as a complication with a simultaneous syphilitic retrobular neuritis. I believe, however, that we have to do with the same kind of gray degeneration that is characteristic of tabetic atrophy in general. As a rule, the spots of gray degeneration are located in the optic nerves, but they may exceptionally locate themselves farther back in the chiasma. According to my belief, bitemporal hemianopia is in most cases of tabes to be considered, not as an accidental complication due to hypostatic inflammation, but as a genuine tabetic affection.

DISCUSSION

DR. GEORGE DE SCHWEINITZ, Philadelphia: I should like Dr. Fuchs to tell us whether the results of his observation indicate that the excessive use of tobacco and alcohol has any bearing on the existence of the central scotoma. I had always supposed that instances of central scotoma were much rarer than 2 per cent.

DR. LUCIEN HOWE, Buffalo, N. Y.: I have found that if the center of the eye did not correspond with the center of the arc of the perimeter, it was not difficult to get almost any kind of field that was desired.

DR. E. FUCHS: It was not 30 per cent. of cases of tabetic atrophy that showed a central scotoma, but thirty cases out of many hundreds. All the patients were men, as is usual in tabes; and there was none of them who did not smoke. The man from whom the specimen came was a heavy smoker. If it had been a toxic scotoma, the stopping of the use of these drugs would have brought about an improvement in the scotoma. I used MacHardy's self-regulating perimeter, the ordinary perimeter, and the campimeter. If you examine the patient on subsequent days, you will not find the results exactly alike, because the fixation is not sure.

The Mechanics of Choked Disk

DR. MYLES STANDISH, Boston: Following an operation on the mastoid, there was thrombosis of the lateral sinus; although it still remained permeable. The patient was operated on, ligature of the jugular vein being done. There was an increase of choked disk on the side operated on, followed by similar appearances in the other eye. These symptoms finally subsided, and the patient recovered.

Cilioretinal Vessels

DR. EDWARD JACKSON, Denver: Such vessels have been observed in 1,000 eyes, with notes of their position in each case. They are almost invariably arterial branches, and can usually be traced from their point of entrance into the optic nerve head. In doubtful cases, arteries may be distinguished from veins by noting which branches of the central retinal vessels they cross. Visible arterial pulsation under normal conditions appears to be more frequent in cilioretinal branches than in branches of the central retinal artery. This may be due to their manner of entering the eye-ball.

DISCUSSION

DR. B. A. RANDALL, Philadelphia: It is certain that, while the veins are far less frequently seen in this condition than are the arteries, they constitute a larger proportion than is indicated by Dr. Jackson, while it is almost invariable that vein crosses vein, and artery crosses artery, this is not always so.

Case of Retinitis Pigmentosa Complicated by an Albuminuric Retinitis

DR. T. B. HOLLOWAY, Philadelphia: The patient was a male, aged 34, who dated the onset of his ocular trouble from an attack of measles that he had had at the age of 9. Nephritis had been known to exist for about four years. Each eye showed lenticular and vitreous opacities. The disks were partially atrophic; and, in addition, the left disk had a distinct blurring of the temporal margins. The retinal vessels were contracted. In each macular region there was a stellate figure, and in the mid zone and periphery was a marked pigmentation characteristic of a retinitis pigmentosa. The fields were contracted to about 15 degree.

A Case of Embolism of the Right Central Artery in a Boy Aged 8

DR. E. GRUENING, New York City: The boy was examined twenty-four hours after the occurrence of the blindness of the right eye, and it showed the ophthalmoscopic picture of embolism of the central retinal artery. In the white zone surrounding the cherry-red spot there were numerous hemorrhagic patches. At present, white patches of peculiar appearance occupy the site of the macula. Embolism of the central retinal artery in children seems to be very rare. The secondary changes in the fundus are unusual.

DR. ALEXANDER DUANE, New York City: I had a case of bilateral partial embolism in a boy of 14, the patient being affected with heart disease.

DR. WILLIAM K. ROGERS, Columbus, O.: A case of the kind once occurred in my own practice. The patient was a boy of 10, who presented a characteristic picture of embolism of the central artery, but is was accompanied with a history of endocarditis, associated with chorea.

Congenital Deviations of the Eyes

DR. ALEXANDER DUANE, New York City: The characteristic marks of a congenital deviation cannot always be relied on. The most frequent forms of congenital deviation are the following: insufficiency of the superior rectus with or without secondary deviation; insufficiency of the inferior rectus; insufficiency of the external and internal rectus, usually combined so as to constitute a special syndrome. In most cases, the anatomic conditions underlying the deviations probably consist of aphasia or other defects of the muscles themselves. Contrary to what is generally supposed, the symptoms of congenital deviation are often important and cause permanent inconvenience. They comprise obvious squint (which may be present at the outset or may not develop until late in childhood), torticollis, asthenopia and aprosexia. The treatment consists in operation. Each case must be judged by itself.

The Function of the Kidney Glomerules.—In his Croonian lecture before the Royal Society of Great Britain, Prof. T. G. Brodie brought out a new conception of the glomerular activity. Recent work, he says, has conclusively shown that the usual explanation of the glomerules, that they act as filters, is incorrect. Excluding filtration, the structural details point to a relation to the blood-pressure in the work of the glomerules, and he suggests as their function the setting up of a pressure head by which the watery part of the urine is driven through the very long and narrow tubules. Its activity would be, therefore, one of propulsion, and he suggests that the glomerulus be called a "propulsor." He finds, by an approximate calculation, that to drive the fluid through the tubules during the height of the kidney activity, a pressure head about equal to that in the glomerular capillaries is required. In support of this he offers the microscopic findings in the kidney after activity. The capsules of Bowman are greatly distended, the glomeruli are moderately enlarged and no longer fill the capsular spaces, and the tubules are straightened out and distended. All these changes are exaggerated by anything that favors the exaggeration of this intratubular pressure, such as a high arterial blood-pressure or obstruction to the outflow through the ureter. The kidney, moreover, is tense and hard, and its capsule stretched to the utmost. The presumption of the propulsor function of the glomerules he says explains the existence of a firm and inextensible capsule to the kidney, and also such phenomena as the maximum ureter pressure, the dependence of the rate of discharge from the kidney on the general blood-pressure and dilatation of the renal arteries, etc. Applying this theory, he says, to the study of the action of diuretics in animals in which the blood-pressure has been lowered so that the propulsion can no longer occur, we obtain evidence as to the parts of the renal tubules acted on by these different substances.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

July

1 *Studies on Circulation in Man and the Influence of Oxygen Inhalation on Circulation in a Case of Cyanosis. G. N. Stewart, Cleveland.
2 *Further Data on Use of Certain Antimonial Compounds in Treatment of Experimental Trypanosomiasis. L. G. Rowntree and J. J. Abel, Baltimore.
3 The Liver in Its Relation to Anaphylactic Shock. C. Voegtlin and B. M. Bernheim, Baltimore.
4 Study of the Antiseptic and the Pharmacologic Properties of Meta-Cresol Acetate. I. Greenwald, New York.
5 Action of Senecio Alkaloids and the Causation of Hepatic Cirrhosis of Cattle (Pictou, Molteno or Winton Disease). A. R. Cushny, London.
6 Properties of Several Species of the Polyporaceæ and of a New Variety of Clitocybe, Clitocybe Dealbata Sudorifica, Peck. W. W. Ford and J. L. Sherrick, Baltimore.
7 *Relation of the Adrenals to Pancreatic Activity. C. W. Edmunds, Ann Arbor.

1. **Influence of Oxygen on Circulation.**—In a man with pulmonary emphysema, chronic bronchitis, and recurring cyanosis not associated with dyspnea, the blood-flow in the hands was increased by oxygen inhalation by an amount varying from 30 to 70 per cent. of the combined flow in the two hands in experiments made on different days during a period of two months. In general, a greater percentage increase under oxygen inhalation was obtained by Stewart when the initial flow was relatively small than when it was large. In this patient the normal flow (without oxygen inhalation) was habitually large, quite as large as in any of the normal cases studied, and larger than the average of the normal cases. The action of oxygen on the blood-flow was not associated with any sensible change in the respiratory movements, nor with any certain change in the alveolar carbon dioxid tension. Stewart is of the opinion that it was therefore conditioned in some way by the increased alveolar oxygen tension. Oxygen inhalation produced no sensible change in the rate of the blood-flow in the hands of two normal men.

2. **Antimonial Compounds.**—Many experiments on trypansome infected rats were made by Rowntree and Abel to determine the therapeutic value of antimonial compounds. They found that although the antimony salt of succinic acid is capable of causing the disappearance of trypanosomes, yet in the vast majority of cases its action is of very short duration. It is irritant locally, more toxic than the sodium antimony thioglycollate or the triamide of antimony thioglycollic acid, and much less efficient in the treatment of experimental trypanosomiasis.

7. **Adrenals and Pancreatic Activity.**—The results obtained by Edmunds in his experiments would seem to dispose finally of any objection which could be raised against the explanation that the inhibition of the pancreas by epinephrin (adrenalin) is due to the vasoconstriction and consequent anemia of the gland. Briefly, the evidence in favor of such a view is as follows: After doses of ergotoxin which paralyze the vasomotor nerves, epinephrin no longer causes constriction of the vessels of the gland, nor does it inhibit it. Pituitary extract will not inhibit unless it constricts the vessels of the gland. Nicotin and strychnin in their primary stimulant doses constrict the vessels of the pancreas and inhibit its action. Later, after the paralytic stage has come on, neither drug lessens the blood-supply to the gland, nor does either cause inhibition. Other drugs, such as strophanthin, pilocarpin and barium chlorid, which constrict the vessels of the gland, cause inhibition. If, on the other hand, they increase the blood-flow to the gland, as shown by increasing its volume, they have a tendency to accelerate the flow. Direct electric stimulation of the splanchnic nerve will produce precisely the same inhibition as will chemical stimulation.

Laryngoscope, St. Louis

July

8 Atypical Mastoiditis. E. A. Crockett, Boston.
9 Id. T. J. Harris, New York.
10 Case of Nasal Sarcoma Removed by Intranasal Operation; Recurrence After Thirteen Years; External Operation and No Return After Three and a Half Years. C. H. Knight, New York.
11 Three Cases of Fibrous Polyp of Nasopharynx with Exhibition [illegible] Wells, Washington, D. C.
12 [illegible] llectomy and Sequela of Operation. A. [illegible] Ky.
13 [illegible] of Laryngeal Carcinoma Since Organization of the American Laryngological Association. J. S. Cohen, Philadelphia.
14 Congenital Web of Esophagus. J. P. Clark, Boston.
15 Aty, .cal Mastoiditis. J. A. Stucky, Lexington, Ky.

Cleveland Medical Journal

July

16 Tuberculin, Its Use and Administration. E. R. Brooks, Cleveland.
17 *The Blood in Pertussis; Report of 120 Cases. N. P. McGay, Cleveland.
18 Case of Probable Abscess of the Larynx, Requiring Intubation, Followed by Inspiration Pneumonia. J. J. Thomas, Cleveland.
19 *Interesting Case of Major Hysteria, Successfully Treated by Reeducation. H. H. Drysdale, Cleveland.
20 Circulation After Forcible Reduction of Congenital Club-Foot. W. G. Stern, Cleveland.
21 Chemical Condition of Lake Water After Chlorin Treatment. H. D. Haskins and S. A. Cleaveland, Cleveland.
22 Hypertension of the Portal System. M. Schott, Cleveland.
23 Routine Bacteriologic and Chemical Examinations of the Cleveland Milk-Supply. H. O. Way, Cleveland.

17. **Blood in Pertussis.**—McGay examined the blood in forty-six cases of pertussis. In all the cases a leukocytosis of from 7,600 to 46,000 was found, as well as a lymphocytosis, with a decrease in the polymorphonuclears. Comparing the averages in forty-six pertussis cases with ten normal cases, there is an average increase of 6,070 in the leukocyte count, or approximately 33 per cent.; an increase of 1.9 per cent. in the large mononuclears, and of 5 per cent. in the lymphocytes, and a decrease of 6 per cent. in the polymorphonuclears; the transitionals, eosinophils and mast cells remaining approximately the same. In bronchitis and pneumonia the polymorphonuclear count is much higher than in pertussis, while the lymphocyte count, both small and large, is considerably decreased. The lower the leukocyte count, the higher the lymphocytes and the lower the polymorphonuclears; and as the leukocytes increased so did the polymorphonuclears, while the lymphocytes decreased in relatively the same proportion. The cases showing the lowest leukocyte count at the beginning of the child's coughing were the ones soonest well of the disease, except in one case, which held out as long as any, while another case had a recurrence with a count very similar to the one listed. The only fatal cases in the 120 directly attributable to whooping-cough were the ones (five in number) showing the highest leukocytosis. Four of the five fatal cases were caused by pneumonia complicating the pertussis; the fifth death resulting from gastro-enteritis.

19. **Major Hysteria.**—The case reported by Drysdale was of interest on account of the unusual combination of somatic phenomena appearing in one patient, i. e., hysterical paraplegia, multiple contractures, hemianesthesia, hyperesthetic zones, amblyopia, dyschromatopsia, unilateral anosmia and ageusia, bradylalia, amnesia, contraction of the psychic functions, etc.

Journal of South Carolina Medical Association, Charleston

July

24 *Transmission of Typhoid and Its Prevention by Vaccination. A. Lambert, New York.
25 *Herniotomy in Youth and Old Age. A. C. Baker, Charleston.
26 *Raynaud's Disease. T. E. Wannamaker, Cheraw.
27 Treatment of Typhoid. J. Forrest, Charleston.

24, 25 and 26. Abstracted in THE JOURNAL, June 3, 1911, p. 1679.

Illinois Medical Journal, Springfield

August

28 Ante-Mortem and Post-Mortem Examinations of John Junkins. H. J. H. Hoeve, Des Moines.
29 *Experimental Transplantation of Legs. V. D. Lespinasse, Chicago.
30 Diagnosis of Associated Diseases of the Eye and Nasal Accessory Sinuses. F. Brawley, Chicago.
31 Internal Secretion of the Thyroid. A. Werelius, Chicago.
32 Active Immunization in Tuberculosis. H. J. Achard, Chicago.
33 *Bisulphate of Quinin in the Treatment of Acute and Subacute Gonorrheal Urethritis. A. E. Mowry, Chicago.

34 Treatment of Syphilis; a Retrospect and a Prospect. E. A. Fischkin, Chicago.
35 Technic for the Intravenous Injection of Salvarsan. L. B. Baldwin, Chicago.
36 Plea for the Borderline Case. F. E. Auten, Belleville, Ill.
37 Treatment of Hemorrhoids Under Local Anesthesia. C. J. Drueck, Chicago.
38 Religion and Medicine. J. R. E. Craighead.

29. Abstracted in THE JOURNAL, June 10, 1911, p. 1747.

33. Bisulphate of Quinin in Acute and Subacute Gonorrheal Urethritis.—Mowry has used bisulphate of quinin irrigations in fourteen cases of acute gonorrheal urethritis, and he says his results have been gratifying in most of the cases. Fifty per cent. of the patients have apparently been cured in the course of two weeks. In using the solution of bisulphate of quinin for irrigation purposes, Mowry begins with a solution of 1 to 3,000, and gradually increases the strength to 1 to 1,500. He uses the solution as warm as the patient can comfortably bear, with care always taken to avoid mechanical irritation to the meatus by the irrigating tip, and that the flow is continuous by not putting on too much pressure and still putting on enough to insure the solution getting well into the urethra. He has also used the above-described solutions in two cases of cystitis 1 to 5,000 with good results, and in four cases of chronic posterior urethritis with a fair result. In the latter cases he used the solution 1 to 400 in form of an instillation, using the Ultzman deep urethral syringe. As an anterior injection for the patient's own use, Mowry makes the strength of the solution 1 in 200 to 1 in 1,000.

St. Louis Medical Review

July

39 Scoliosis. A. O'Reilly, St. Louis.
40 Etiology and Diagnosis of Pellagra. S. T. Rucker, Memphis, Tenn.
41 The Diagraphoscope. R. D. Carman, St. Louis.
42 Spread of Tuberculosis and How to Prevent It. L. Weiss, Newark, N. J.
43 Gunshot Wounds of the Inferior Vena Cava Without Symptoms of Internal Hemorrhage. J. D. Bloom, New Orleans.
44 Crotalin in the Treatment of Pulmonary Gangrene. T. Mays, Philadelphia.
45 Naphtha Soap; Its Dangers. B. M. Ricketts, Cincinnati.
46 The State and the School Child. F. A. Tucker, Noblesville, Ind.

Journal of American Public Health Association, Columbus

July

47 *Antityphoid Vaccination in American Army. F. F. Russell, U. S. Army.
48 Mayors and Municipal Health. J. A. Kingsbury, New York.
49 Vital Statistics in the Promotion of Public Health. W. H. Guilfoy, New York.
50 Occupational Statistics for Tuberculosis in Wisconsin. L. W. Hutchcroft.
51 Garbage Receptacles. P. M. Hall, Minneapolis.

47. Antityphoid Vaccination in American Army.—In the United States Army the vaccination against typhoid was begun in March, 1909, and up to Aug. 1, 1910, 11,771 persons were vaccinated. The total number of doses administered was 31,556. It has been the practice to give three doses at ten-day intervals to as many volunteers as possible. Seventy-five per cent. have received the full course of three doses; 21 per cent. have received two doses, and only 4 per cent. have failed to receive more than one dose. The failure to receive the second dose has sometimes been due to refusal, but just as often to change of station, discharge, desertion, etc. The first dose is 500,000,000 bacteria, the second and third 1,000,000,000 each. Ninety-five per cent. of the men had little or no fever or discomfort, aside from the local reaction. This consists of a somewhat red and tender area at the point of inoculation, which is rarely troublesome, and usually disappears in from forty-eight to seventy-two hours. Among the vaccinated men, three cases of typhoid have occurred, while, during the same length of time, there were 306 cases among the unvaccinated. The three cases were all mild and ended in recovery. Russell believes that the first case was probably infected immediately before or after receiving the first dose, and was admitted to the hospital soon after the second; the diagnosis was confirmed by isolation of the bacilli from the stools. The other two cases were so mild that, in the absence of blood cultures, there remains some doubt as to the correctness of the diagnosis.

Bulletin of the Manila Medical Society, Manila

June

52 Paratyphoid-Like Bacillus Isolated from a Dog. E. H. Ruediger, Manila.
53 Myiasis Narium. I. W. Brewer, U. S. Army.
54 *Duration of Passive Immunity Against Tetanus. E. H. Ruediger, Manila.

54. Duration of Passive Immunity Against Tetanus.—According to the results obtained by others and by himself, Ruediger concludes that passive immunity against tetanus is of short duration. Where alien serum is used immunity disappears in about three weeks; with homologous serum the duration may be about two months. The longest period of passive immunity conferred by alien serum reported on seems to be six months, observed by Roemer and Sames. Passive immunity conferred to the guinea-pig by a moderate dose of tetanus antitoxin from the horse is of less than three weeks' duration. Passive immunity from a large dose (300 units) of alien serum appears to be only a few days' longer duration than that from a smaller dose (100 units).

Western Medical Review, Omaha, Neb.

August

55 Roentgen-Ray Method of Locating Exact Position of Foreign Body Within the Eye-Ball; Special Reference to Bowen-Sweet Method. W. H. Mick, Omaha.
56 Localization and Extraction of Intra-Ocular Foreign Bodies. J. M. Patton, Omaha.
57 Case of Congenital Stenosis of the Pylorus Treated Surgically. G. Haslam, Fremont, Neb.
58 After-Treatment in Surgery of the Digestive Organs. B. R. McGrath, Grand Island, Neb.
59 Conservation of Vision. F. S. Owen, Omaha.
60 Practice of Medicine—Its Success and Failure. F. A. Butler, Harvard, Neb.

American Journal of Surgery, New York

August

61 Malignant Disease as a Problem of Modern Surgery. J. B. Deaver, Philadelphia.
62 Abdominal Pain; Its Diagnostic Significance in Surgical Diseases. J. P. Warbasse, Brooklyn.
63 Indications for Mastoid Operation. F. E. Franchere, Sioux City, Iowa.
64 Rhinophyma; Operative Treatment. R. S. Fowler, Brooklyn.
65 Certain Limitations of Living Pathology. D. Roberts, Brooklyn.
66 *Study of Cancer. J. A. McGlinn, Philadelphia.
67 Early Diagnosis of Cancer of the Skin. W. S. Gottheil, New York.
68 *Acute Angulation and Flexure of the Sigmoid a Causative Factor in Epilepsy. W. H. Axtell, Bellingham, Wash.

66. Cancer.—This study by McGlinn is taken from the records of 8,515 post-mortem examinations made at the Philadelphia General Hospital from Sept. 12, 1867, to Sept. 1, 1909. In this series there were 457 cases of cancer. One patient out of every nineteen posted (18.6) had cancer. Cancer was found in males in 274 cases and in females in 179 cases; the sex not being specified in four cases. Eliminating the organs peculiar to the sex, the percentage for males was 72.5 and for females 27.5. The frequency as to age was as follows: Twenty to 39 years, forty-four cases; 40 to 49 years, ninety-three cases; 50 to 59 years, 107 cases; 60 to 69 years, 121 cases; 70 to 79 years, sixty-seven cases; 80 and over, 113 cases. The location of the cancer was: Stomach, 168 cases; uterus, forty cases; breast, thirty-eight cases; pancreas, thirty-six cases; esophagus, thirty-one cases; liver, twenty-six cases; rectum, eighteen cases; gall-bladder, eleven cases. Chronic tuberculosis of the lungs (healed foci) was found associated with cancer 197 times; acute pulmonary tuberculosis, seventeen times; tuberculous peritonitis, five times, a total of 219 cases. Gallstones were present in fifty-one cases. In the entire series of autopsies gall-stones were found in 507 of the cases. Kidney-stones in the cancer cases were found seven times. Other neoplasms noted in association with the cancer cases were as follows: fibroid of uterus, twenty-five cases; fibroid of ovary, one case; broad ligament cyst, one case; ovarian cyst, four cases; papilloma of ovary, two cases; sarcoma, one case; hypernephroma, one case. Syphilitic lesions were found in eight of the cases.

68. Acute Angulation and Flexure of Sigmoid a Causative Factor in Epilepsy.—Since his last report on this subject, Axtell has had two additional private cases and examined three asylum cases, making a total of ten private and twenty-six asylum cases. In the whole number of cases the same conditions in varying degrees were present excepting in one asylum case. A remarkable feature in connection with this case was that the abdominal examination excluded the possibility of the internal trouble being present. In this particular case the epilepsy was produced by a depressed fracture. This was the first case of a normal condition of the rectum and sigmoid found at the asylum. There was no angulation or impaction whatsoever; no gaseous distention of the cecum or history of persistent and obstinate constipation. Of the ten private patients only four persisted in the treatment for the rectosigmoidal difficulties. Of these four, three are practically relieved of the epilepsy, as well as the rectosigmoidal trouble. The fourth patient who persisted in the treatment for an acute angulation, thickening and ulceration at the rectosigmoidal juncture was made worse while taking treatment. The convulsions occurred three or four times per month. After the acute angulation, ulceration, hypertrophy and the prolapsed and impacted sigmoid were relieved, the convulsions ceased. He has had no recurrence for more than two months. The fact that the frequency of the convulsions was increased during active treatment is the most convincing evidence in Axtell's opinion that the cerebrospinal irritation was caused by the rectosigmoidal trouble.

Albany Medical Annals, New York

August

69 Chemistry of Metabolism and Its Relation to Ocular Disease. S. L. Ziegler, Philadelphia.
70 Angina Pectoris Due to Sclerosis of Both Coronaries and Embolism of the Right; Symptoms Limited to Pain. C. Stover, Amsterdam, N. Y.
71 Angina Pectoris and Disease of the Coronary Arteries. T. Ordway, Albany.

California State Journal of Medicine, San Francisco

August

72 Surgery of Nose, with Free Transplantation of Bone. L. Eloesser, San Francisco.
73 *Intestinal Indigestion in Adults. E. Schmoll and W. C. Alvarez, San Francisco.
74 *Intestinal Indigestion from a Surgical Point of View. R. Smith, Los Angeles.
75 Case of Carcinoma of the Eyelid. H. A. Kiefer, Los Angeles.
76 *Dermatitis Venenata from Proprietary Hair Dye. E. D. Chipman, San Francisco.
77 *Case of Perforated Duodenal Ulcer, Operated on Fifty-Five Hours After Perforation, Complicated by Double Pleuropneumonia. L. W. Allen, San Francisco.
78 Modern Milk Feeding Station for Infants; Clinical Results. P. V. K. Johnson and P. S. Chancellor, Chicago.
79 Prevention of Postobstetric Lesions. D. Hadden, Oakland.
80 Borderline Cases of Ear Disease. P. A. Jordan, San Jose, Cal.
81 *Significance and Treatment of Abdominal Pain. C. P. Thomas, Los Angeles.
82 Early Diagnosis and the Prophylaxis of Toxemia of Pregnancy. T. Coffey, Los Angeles.
83 Arteriosclerosis; Review of Cases. D. J. Frick, Los Angeles.
84 *Treatment of Epithelioma by Curetting, Followed by Cauterization with Chromic Acid and Later by Exposure to X-Rays. G. D. Culver, San Francisco.
85 New Tonsil-Knife, with Description of Its Use. P. Summer, San Francisco.

73. **Intestinal Indigestion in Adults.**—The authors' studies have shown that these patients have the greatest difficulty in handling the cellulose in their diet. Therefore, they should be given a concentrated diet of high caloric value which will tax their weakened powers of digestion as little as possible and leave no bulky residue to irritate the hypersensitive colon. Such a diet must be controlled frequently by the stool examination, and the symptoms, such as flatulence, auto-intoxication, etc., and the relative amounts of starch, meats and fats adjusted to the individual. All vegetables and starches should be cooked very thoroughly, and those, such as beans and peas, which have resistant capsules should be passed through a sieve and puréed. Contrary to expectation, this diet rarely aggravates constipation and sometimes it even improves matters by relieving spasm due to bulky, irritant masses. It is well, however, to have the patient eat plenty of stewed fruit without skins or seeds. Stool examination seems to show that the diseased intestine is absolutely unable to deal with poorly chewed food, and many an indigestion can be cured by securing better conditions in the mouth. Nothing will help the severer enteroptotic cases more than fattening. In such cases the authors generally give a diet containing 3,000 to 5,000 calories and a large amount of fat, mainly in the form of cream and butter. There is generally some repulsion and disturbance for the first three or four days, but they have not as yet found a case in which the diet had to be given up, or in which it failed to produce the desired gain in weight. During the first few days the patient should be in bed, as the sagging intestines do their work very much better when they have fallen back into place. The practice many surgeons have of "fixing" one or two of the prolapsed organs is strongly condemned by the authors. They believe it is irrational and does not take into account the condition as a whole.

74. **Intestinal Indigestion.**—Smith defends the surgical treatment of this condition.

76. **Dermatitis Venenata.**—Within a few months Chipman has met with six cases of severe dermatitis of more or less extensive distribution, the reaction in each instance following the use of "Mrs. Potter's Walnut Tint Hair Stain." This preparation was found by the North Dakota Agricultural Experiment Station to depend "for its action on paraphenylene-diamin, a substance which when oxidized by means of a solution of hydrogen dioxid becomes an intense black."

77. **Perforated Duodenal Ulcer.**—The purpose of Allen in reporting this interesting case is to draw attention to the fact that simple drainage to the point of rupture is all that is necessary for a permanent cure; that breaking away adhesions to see and suture the perforation may add just enough shock to change a favorable to an unfavorable termination. The patient in this case recovered.

81. **Treatment of Abdominal Pain.**—Thomas believes that many chronic sour stomachs in belchers are due to colitis, and curable by appendicostomy with proper after-treatment. He condemns the uncalled-for use of the hypodermic syringe. He says it is more disastrous than the uterine curet.

84. **Curetting in Epithelioma.**—Out of 139 patients presenting epitheliomata, forty-four with fifty-three separate lesions were treated by Culver by curettage and the application of chromic acid crystals. The tumors were located as follows: nose, fifteen; cheeks, fourteen; ear shell, seven; forehead, seven; eyelids, five; and one each on upper lip, lower lip, neck, chin and back of hand. Twelve of the forty-four patients had previously been treated by one or more methods of treatment and there was either incomplete removal or recurrence from apparent complete removal. Five of the forty-four are now under treatment. Of the remaining thirty-nine, twenty-three of whom Culver had knowledge and who had twenty-seven different tumors have remained free from recurrence for periods of time varying from a few months to five years. Seven of the remaining sixteen never had recurrences or have not had up to the present time, and of six others information is unavailable. Three had recurrences and one of the five under treatment has a recurrence, making a total of known recurrences in four patients, practically 9 per cent. Subsequent treatment of the four has been along similar lines. Eleven patients have been treated with Roentgen rays following the removal of the crust formed by the cauterization with chromic acid. The points considered in the selection of cases are these: The lesion generally has been present many months, is either a firmly indurated plate or tubercle in the skin, of shiny, waxy appearance, pinkish or yellowish in color, showing distinct dilated capillaries near its surface, or it is an ulcerated lesion showing in some part of its periphery a raised, rolled or nodular firm, waxy border which presents the characteristic dilated capillaries, and having an irregular center with an uneven, easily bleeding base that discharges a viscid fluid which dries into dirty yellowish crusts. Its appearance is often greatly changed by added infection or by previous treatment, but some of the characteristics are always present. Metastatic processes are uncommon in this type of epithelioma, but are sometimes present, and if so an entirely different treatment is required, and if inoperable it becomes the unpleasant duty of the physician to so consider it. It is this type of growth that is so frequently mistaken for lupus, but the history of its not having begun so early in life and the absence of the so-called apple-jelly nodules seen in lupus vulgaris through a glass pressed over the lesion would rule out the latter.

Journal of Minnesota State Medical Association and Northwestern Lancet, Minneapolis

August 1

86 Operative Treatment of Perforation in Typhoid. G. D. Head, Minneapolis.
87 Case of Fracture of the Neck of the Femur. H. C. Windell, Williston, N. D.
88 Enteritis in Infants and Its Dietetic Treatment. H. D. Newkirk, Minneapolis.

New York Medical Journal

August 5

89 *Relation of the Tonsil Operations to the Soft Palate and Voice. G. Hudson-Makuen, Philadelphia.
90 Reflex Affections of the Tonsil. R. B. Faulkner, Pittsburg.
91 Renal Function in Surgery, with Particular Reference to Kidney Surgery. L. E. Schmidt, Chicago.
92 Some Cases of Optic Neuritis Benefited by Operation on the Sphenoidal Sinus and Posterior Ethmoidal Cells. H. Smith, New York.
93 Diagnosis of Brain Tumors. J. E. Burns, Wheeling, W. Va.
94 Diagnosis of Incipient Pulmonary Tuberculosis. B. S. Horowicz, New York.
95 Use and Abuse of Coffee. R. E. Coughlin, New York.
96 Hysteria in a Girl of 7 Years. G. H. Nofer, Philadelphia.

August 12

97 *Chronic Appendicitis with Obscure Manifestations. N. Jacobson, Syracuse.
98 *Case of Typhoid Bacillus Cholecystitis. B. Holmes, Chicago.
99 Esthetics of Surgery. A. M. Crispin, New York.
100 Experiences with Salvarsan in Syphilis. H. Goldenberg and D. J. Kaliski, New York.
101 Medical Aspect of Life-Insurance. A. Moss, New York.
102 Prophylaxis of Social Disease. M. Glasgow, New York.
103 Treatment of Gastric Ulcer by Lenhartz' Method. J. J. Gilbride, Philadelphia.
104 Two Cases of Occipital Abscess with Wernicke's Pupillary Phenomenon. I. Strauss, New York.

89. **Tonsil Operation and Soft Palate and Voice.**—The causes for the belief that the removal of the tonsils in some way results in an impairment of the voice, are discussed by Hudson-Makuen. He shows that normal tonsils are in no way prejudicial to phonation, but, on the contrary, they may be helpful both in directing the action of the neighboring muscles and in modifying the resonance of the oral cavity. Hypertrophied tonsils, on the other hand, are distinctly prejudicial to phonation, because they interfere with the action of the muscles, they deflect the vibrating column of breath, and impair the normal resonance of the oral cavity. Degenerate tonsils are prejudicial to phonation primarily because they are prejudicial to health, and secondarily, because they interfere with the action of important vocal organs, by setting up a catarrhal condition in the oropharynx, which results in hypertrophy of the faucial pillars, the plica and the capsule, and in numerous inflammatory adhesions binding all these parts together in one conglomerate mass. The two important indications for the tonsil operation are, to remove foci of infection and to increase or restore the functional efficiency of the respiratory, phonatory and articulatory organs; and the operation that fails to meet the requirements of these two indications is more or less of a failure. The tonsil that requires removal is always prejudicial to vocal excellence. The author is firm in his claim that the popular belief that the removal of tonsils is injurious to the voice is well founded, and it is due in large measure to careless or bad surgery.

97. **Chronic Appendicitis.**—In five cases cited by Jacobson the early history has always been indefinite whether the symptoms have been referable to the stomach, duodenum, gall-bladder or the large bowel, and a period varying from one year to several years has elapsed before any evidence strongly suggesting appendicular disturbance has manifested itself. However, in the end, close analysis of the symptoms and repeated examinations of the abdomen have warranted each time the diagnosis of chronic appendicitis. Jacobson emphasizes that it is essential to investigate these cases thoroughly and to exclude all other pathologic conditions before determining to remove the appendix.

98. **Typhoid Bacillus Cholecystitis.**—Holmes reports a case of typhoid bacillus cholecystitis without typhoid fever or gall-stones. He says that typhoid bacillus cholecystitis is an invariable attendant on typhoid, but clinical (obstructive) cholecystitis occurs only when the cystic duct is obstructed. The gall-bladder often retains the infection long after the typhoid septicemia and typhoid enteritis have passed away, and then the typhoid bacilli may, by use of cholagogues, be found in the stools. The fate of a typhoid bacillus cholecystitis is so uncertain and so surrounded with danger that the fear of a surgical operation in the course or at the beginning of typhoid should not be given too much weight. The cholecystostomy should be performed promptly and quickly with the minimum of anesthetic and the minimum of traumatism. No attempt should be made during typhoid to remove stones from the cystic duct. A later cholecystectomy will rarely be necessary.

Boston Medical and Surgical Journal

August 3

105 *Observations Regarding Relative Frequency of Different Diseases Prevalent in Boston and Its Vicinity. R. C. Cabot, Boston.
106 *Prostatic Concretions and Calculi. F. B. Lund, Boston.
107 Classification of Diabetes. F. W. White, Boston.
108 Result of Tonsillectomy. O. A. Lothrop, Boston.
109 Report of Two Cases of Pneumococcus Meningitis. J. R. Wiseman, Syracuse, N. Y.
110 *Abdominal Pain from Antero-Posterior Curvature. M. H. Rogers, Boston.
111 Anterior Dislocation of Hip. G. H. Monks, Boston.

August 10

112 Aspects of Abdominal Ptosis. J. G. Mumford, Boston.
113 *Chronic Acetanilid Poisoning a Perfectly Definite Symptom Complex. H. C. Gordinier, Troy, N. Y.
114 *Hydrocele and Its Radical Cure by the Insertion of Catgut. C. M. Whitney, Boston.
115 Concerning Nurse Training Schools. S. E. Parsons, Boston.
116 *Compression Myelitis by Aneurysm Occurring in a Tabetic. J. B. Ayer, Boston.

105. **Relative Frequency of Different Diseases Prevalent in Boston.**—In a hospital population of about 8,000 males over 18 years old, all of whom were carefully questioned by Cabot, 35 per cent. give a history of gonorrhea, and 11 per cent. a history of syphilis, at some period of their lives. These histories and the resulting percentages are believed to represent approximately the truth about an average sample of Boston's adult males. The Americans, Irish, English and Italians have about the same amount of both these venereal diseases. The Jews have about one-third as much syphilis and one-half as much gonorrhea as the other races. The history of an excessive consumption of alcohol was obtained in 32 per cent. of 8,356 patients questioned. The Jews show the smallest amount of alcoholism—the "Americans" the highest percentage of total abstainers. About one-fourth of all the 7,186 males who were questioned gave a history of using an excess of tobacco. The Italians appear to use rather less than the other races but the racial differences are less marked as regards tobacco than as regards alcohol and venereal disease. The statistics relating to alcohol and tobacco are regarded as an indication of the habits of a fair sample of Boston's population. Acute nephritis, chlorosis and sunstroke would appear (on the face of the records) to be decreasing. This decrease is shown by analysis, however, to be in all probability fallacious. Pyogenic infections are more than twice as numerous as any other known infection (tuberculosis included). Three Boston hospitals treated 6,892 cases of syphilis and only 4,819 of gonorrhea in the years 1903-1910 inclusive.

106. **Prostatic Concretions and Calculi.**—Three cases are reported by Lund. The lesson he would draw from these cases is that prostatic concretions are frequently associated with infiltration of the prostate, which makes a small, fibrous organ feel larger than it really is by rectal examination and may lead to the suspicion of malignant disease.

110. **Abdominal Pain from Anteroposterior Curvature.**—Rogers reports two cases in support of his claim that an anteroposterior spinal curvature may be the cause of abdominal pain simulating appendicitis, kidney disease, etc. In these two cases correction of the deformity gave relief from the pain.

113. **Chronic Acetanilid Poisoning.**—A study of the cases recorded in the literature and personal observation have convinced Gordinier that the ingestion over a considerable period of time of acetanilid or related coal-tar products is productive of a definite symptom-complex, which is highly suggestive, if not absolutely diagnostic of poisoning by this group. The subjective symptoms are great general weakness, nervous excitability, insomnia, loss of appetite, digestive disturbances, palpitation, dyspnea, numbness and weakness of the extremities, pain in the region of the liver and spleen and faint

attacks. The chief objective symptom is cyanosis, which is often extreme but usually fluctuating in intensity, accompanied by marked pallor of the mucous surfaces and without clubbing of the fingers. The blood changes are quite characteristic and due to the destructive action of a hemolytic poison circulating in the blood stream, which produces a secondary anemia variable in degree. The erythrocytes are diminished in number, they often present nucleated forms, show granular stippling, stain poorly and are variable in size and form. There is usually a moderate leukocytosis of the polymorphonuclear variety, and there is often a relative increase of the lymphocytes. The appearance of the blood as it stands on the finger tip or the ear is very suggestive; it is either of a bluish-black color or chocolate in appearance. The coloration of the plasma renders the estimation of the hemoglobin quite difficult.

The spleen has been found enlarged in most of the well-observed cases, and it is usually tender both on palpation and percussion. The liver is slightly increased in size and is also tender on pressure. The heart is usually found enlarged, the transverse diameter being increased and the apex beat being displaced downward and outward. The heart sounds are feeble, and adventitious murmurs are frequent; systolic, mitral and tricuspid murmurs are common, as are basic systolic murmurs. These murmurs are probably dynamic in origin and due to the loss of tonicity of the heart muscle, as they disappear *pari passu* with the diminution in size of the heart and improvement of the blood on the withdrawal of the acetanilid. The mitral and tricuspid murmurs are, doubtless, caused by relative leakage, while the basic murmurs are hemic in origin. The urine is usually dark brown or black in color and gives the characteristic indophenol reaction. It may contain blood pigments in the form of methemoglobin or hematrophorphorin; bilirubin is common; glycuronates may be present. It is interesting to note that the ratio of the sulphates has been found reversed. In Gordinier's first case, the ratio being 16 to 1, only a comparatively few milligrams of the oxidized sulphur being eliminated in the form of inorganic sulphates. Dextrose was found in both of his cases, and probably exists in small amounts in most cases. Gordinier *has been unable to find any mention in the literature of trophic* changes in the way of ulcerations of the skin such as occurred in one of his cases. That these ulcerations were due to the effects of acetanilid seems probable, as most other causes could be excluded.

114. **Radical Cure of Hydrocele.**—The method used by Whitney consists of the insertion of sterile catgut into the cavity of the tunica vaginalis. It is less toxic than phenol, less painful than iodin and more certain than either of them. By it an inflammation of the sac is immediately produced and as the fluid resulting from this is slowly absorbed, an adhesion of the walls occurs with obliteration of the sac and a permanent cure of the disease.

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American Journal of Diseases of Children, Chicago

August

134 *Occurrence of Infantile Paralysis in the United States and Canada in 1910. R. W. Lovett, Boston.
135 *Cerebral Forms of Poliomyelitis. H. Koplik, New York.
136 *Infantile Paralysis; Spinal Form. J. L. Morse, Boston.
137 *Control of Epidemic Poliomyelitis. S. Flexner, New York.
138 Infantile Paralysis. J. H. M. Knox, Baltimore.
139 *Rôle of Mineral Salts in the Metabolism of Infants. R. R. Hoobler, New York.

134, 135, 136 and 137. Abstracted in THE JOURNAL, July 8, 1911, p. 152.

139. Mineral Salts in Metabolism of Infants.—Hoobler discusses the part which mineral salts play in carrying on the physiologic functions of the body and in what manner they contribute to the various pathologic processes to which the infant and young child are subject. He records fully his results in a series of metabolism studies made on a perfectly healthy infant, 9 months old, who had been fed on cow's milk from the time of birth. Briefly, he found that salts are necessary to maintain life. They are best absorbed and utilized when in organic combination with food-stuffs. There are marked differences in the salt content of mother's and cow's milk which should be considered in artificial feeding. Certain pathologic conditions arise in which certain of the salts are not absorbed, even though in abundance in the food. In certain other pathologic conditions salts are actually withdrawn from the body to such an extent as to impoverish the organism and produce grave disturbances of nutrition. The various salts, with the exception of iron, are present in sufficient quantities and proper proportions in mother's milk. In most of the dilutions of cow's milk there is an excess of salts which may be neglected in feeding normal infants, but which plays an important rôle in the feeding of children already suffering from nutritional disturbances. The conditions under which the salt content of feedings should be altered and in just what degree each or all should be varied, are still unsolved problems.

Journal of Oklahoma State Medical Association, Muskogee

August

140 Extra-Uterine Pregnancy. W. C. Graves, McAlester.
141 Uterine Deviations. H. Reed, Oklahoma City.
142 The Puerperium. A. N. Lerskov, Claremore.
143. Prevention and Treatment of Superficial Infection. E. H. Troy, McAlester.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

July 29

1 *The Present Position of the Medical Profession. R. Saundby.
2 *Mistakes. B. Bramwell.
3 *Progress in Surgery. J. Lloyd.
4 *Simple Method of Treating Fracture of the Patella. J. T. Maclachlan.
5 Treatment of Fractures. A. V. Lèche.
6 Erythema Nodosum. G. Pollock.
7 Salvarsan in Almond Oil. A. Loxton.

1. Present Position of Medical Profession.—Speaking of medical education, Saundby says, in his presidential address before the British Medical Association, that it should be possible to make the curriculum five years in a medical school after preliminary science has been passed, and so adequate time be obtained for those subjects which can be learned only in a medical school and in a hospital. Though there is still much in the modern arrangements for medical education which falls short of our desires, there has been a vast improvement in the organization of medical teaching, in the equipment of medical schools, and in their methods of instruction. Medical education in England has always had its feet firmly planted on the solid foundation of hospital work, but it was deficient in academic opportunities as compared with the schools of Scotland and the Continent. The hospitals have provided abundant clinical material, and many subordinate appointments of incalculable value for the training of practitioners, but the scientific needs of students are but poorly supplied in them. During the last ten years this has been to some extent remedied by the better equipment of the medical schools, mainly by the self-sacrifice of the senior teachers, who have surrendered the greater part of their scanty emoluments for this purpose; laboratories have been started in all schools, and in some hospitals it has been realized that it is not enough to possess good accommodation for the care and comfort of the sick, but that adequate means must also be provided for the study of their diseases by good laboratories with a sufficient paid staff. Saundby asks that hospital authorities take a broader view of their duties and realize that in the end the interest of the patients will be best served by spending more money on the scientific equipment of these institutions. The function of voluntary hospitals, medicine and the state and the national insurance bill are also considered in this paper.

2. Mistakes.—This is the address in medicine delivered at the recent annual meeting of the British Medical Association. Bramwell points out that there are mistakes of various kinds. There are the bad mistakes, which show incapacity to make the most ordinary observations, gross ignorance, or inexcusable carelessness; and there are the slight mistakes—they perhaps should hardly be called mistakes—such as erroneous conclusions with regard to the significance of certain facts or groups of facts. There are mistakes of omission and mistakes of commission, mistakes due to incomplete, inaccurate, or erroneous observation, mistakes due to hasty or illogical conclusions. There are mistakes which as regards their results are unimportant; and mistakes which, either to the practitioner who makes them, to the patient whose case is wrongly diagnosed, or to the public at large, are of great importance, since they may entail very disastrous consequences. Mistakes due to imperfect knowledge, to want of clinical experience, to erroneous observation, to inability to observe correctly, are most common in the early years of one's practice. In the case of experienced practitioners, hurry, and the incomplete examination of patients due to hurry, and hasty conclusions are probably by far the most common causes of errors in diagnosis. Physiognomonic diagnoses are apt to be erroneous. Mistakes are not infrequently due to the fact that the information secured from third parties is insufficient, inaccurate, or misleading. Before a disease is described as a distinct clinical and pathologic entity; typical and characteristic cases, which a few years later are easily diagnosed, are mistaken for other conditions. Mistakes due to erroneous deductions and illogical conclusions are very common. Even those men in whom the judicial faculties are most highly cultivated often fail to draw the same conclusions from the same facts.

Mistakes in diagnosis often occur because undue importance is given to some symptom or physical sign which is present. Mistakes are sometimes due to too little importance being attached to some fact or facts. Errors in diagnosis are often due to the fact that one's judgment is warped or biased from some cause or another. Most of us probably know how difficult it is to diagnose and treat illness in one's self or in members of one's own family. One's judgment is upset by anxiety and fear; all sorts of terrible possibilities occur to the mind and prevent one taking a cool and level-headed view of the case. On the other hand, one occasionally sees the exact reverse of this picture—a medical man the subject of advanced organic disease ignoring it or making light of it, and of the symptoms which it produces, in the most extraordinary way. One's judgment is apt to become biased in favor of some particular theory or idea, and under such circumstances, one sees everything in the light of that idea. Erroneous therapeutic conclusions, based on too limited a number of observations, are common.

3. Progress in Surgery.—Lloyd reviews the advances made in surgery, speaking more particularly of exploratory operations, kidney and stomach surgery, appendicitis, colostomy, cecostomy, prostatectomy and herniotomy. Speaking of gastric surgery he says that precision in the diagnosis of many stomach diseases can be secured only by exploratory incision, and that earlier resort to this procedure in many cases is very desirable. When pyloric obstruction is present, as eviattacks. The chief objective symptom is cyanosis, which is often extreme but usually fluctuating in intensity, accompanied by marked pallor of the mucous surfaces and without clubbing of the fingers. The blood changes are quite characteristic and due to the destructive action of a hemolytic poison circulating in the blood stream, which produces a secondary anemia variable in degree. The erythrocytes are diminished in number, they often present nucleated forms, show granular stippling, stain poorly and are variable in size and form. There is usually a moderate leukocytosis of the polymorphonuclear variety, and there is often a relative increase of the lymphocytes. The appearance of the blood as it stands on the finger tip or the ear is very suggestive; it is either of a bluish-black color or chocolate in appearance. The coloration of the plasma renders the estimation of the hemoglobin quite difficult.

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impulse, respectively. The radial pulse was markedly alternating; but there was no evidence in the cardiograms of variations in strength of the ventricular contraction. (b) In the other case pulsation was recorded from the clinical apex-beat, and also from the fourth left intercostal space about 1½ inches from the left edge of the sternum. The cardiogram from both situations had the characters of left ventricular pulsation; that obtained from the fifth space at no time showed alternation in force. The cardiogram from the fourth intercostal space continuously alternated, except for brief periods.

The relationship between the alternating beats of the cardiogram and those of the radial pulse were not constant, the height of the respective waves being at times opposed, at others similar; at others, again, alternation was present in the heart-beat curve, whilst that of the radial pulse was equal; the reverse relationship occurred. Alternation was often pronounced in records of the jugular pulsation of this patient; invariably the larger wave corresponded to the higher wave of the radial pulse. In curves having character of right ventricular pulsation no evidence of alternation was present at any time. No variation in the intensity, pitch or duration of the heart-sounds or murmurs coincident with alternation of the pulse was detected in any case. While the observations lend some support to the view of Hering, that in alternate heart-beat a partial systole of the ventricle occurs, they also show that in alternating pulse it is not always possible, in clinical cases, to determine the fact of alternating heart action.

20. **Analysis of Gastric Contents.**—The investigations made by Panton and Tidy fall into two parts: the first deals with the routine examination of test-meals in a series of cases, the second consists of an inquiry into the various methods of examining test-meals and the meaning of the results obtained. In all 331 cases were examined: Carcinoma of stomach, 43 cases, operated 30. Gastric ulcer, 87 cases, operated 49. Duodenal ulcer, 36 cases, operated 21. Other gastric cases not operated, 62. Various conditions, 103 cases, operated 36. The results obtained follow: In normal gastric contents Günzberg's reaction is positive, free hydrochloric acid varies between 0.08 and 0.12, and the acidity lies between 40 and 50. In carcinoma of the stomach Günzberg's reaction is nearly always negative, i. e., free hydrochloric acid is absent. The average of the total acidity is 26. Some dimethyl acidity is often present. In the rare cases in which carcinoma is grafted on a simple ulcer, free hydrochloric acid is usually present, and the total acidity may be normal or even above normal. Thus, in these cases, the analysis often resembles that found in simple gastric ulcer. In simple gastric ulcer Günzberg's reaction is positive, the average of the free hydrochloric acid is 0.13 and the total acidity, 58. Free hydrochloric acid may be absent after a severe hemorrhage or after a previous gastrojejunostomy. In duodenal ulcer the average of the free hydrochloric acid is 0.17, and the total acidity, 69. Free hydrochloric acid is usually absent in cases of achylia gastrica, chronic alcoholic gastritis, severe anemia, chronic pulmonary tuberculosis, and in some forms of chronic dyspepsia. In these latter cases relief of gastric symptoms usually follows treatment by acids. Cases of hyperchlorhydria are commonly relieved by alkalies. It is not suggested by the authors that the diagnosis and treatment of gastric cases should depend on the result of test-meals alone, but they find that the simple analysis described affords very reliable information when taken in conjunction with clinical observation, and particularly with a carefully taken history.

21. **Systolic Pressure.**—The conclusions which Findlay draws from his study of well and sick children are, briefly: During childhood and youth the systolic arterial pressure is fairly uniform at different points of the circulation. In adult life the peripheral systolic pressure is lower than the central, and the difference between them increases with age. The difference greater than normal between the central and peripheral systolic pressures in cases of hypertension—from disease or experimentally induced—supports the idea that the behavior of the pressure and its variations depends on changes in the elasticity of the vessel wall.

22. **Function of A-V Bundle.**—The first case cited by the authors was one of Adams-Stokes syndrome with chronic bradycardia for many months, interrupted by short paroxysms of tachycardia. The post-mortem microscopic examination of the heart showed a destruction completely across the chief trunk of the a-v bundle. The heart was enlarged throughout (weight 590 gm.), the mitral valve calcified and the mitral ostium somewhat contracted. The calcareous infiltrations were continued into the septum membranaceum; on the right side this calcification could be seen as a projecting knot, the size of a pea and calcified right through, occupying the front part of the septum membranaceum. Also the aortic valves, especially the left were calcified so that the calcareous encrustations from the mitral valve and septum membranaceum were continued directly to the aortic valves. Both of the coronaries were calcified, but in no place obliterated or contracted. Microscopically, the muscles of the heart appeared normal, excepting certain small fibrous scars in the left ventricle. The macroscopic appearance of the calcareous knot and its situation alone made it highly probable that the main trunk of the a-v bundle must be damaged by the calcareous masses to a greater or lesser extent. The microscopic examination also showed that the main trunk of the a-v bundle had disappeared entirely, leaving not a trace of its normal tissue in the great calcareous knot. The authors assume that the relationship between auricle and ventricle along the a-v bundle must have been quite broken for a long time before death, and when also all the signs of a complete block have long been present, there occur attacks of great frequency of the pulse. The tracings from the last weeks of the patient's [illegible] show that the stimulus conduction from auricle to [illegible] reflex must have oeen to some extent restored, thoug[illegible] in two other the post-mortem a little later makes it ma bradycardia no that the main trunk of the a-v bundle mumption of injury to say, cut across by the large calcareous kiopment of jaun-

In the second case there was a normal urine. In itself, strongly pronounced degenerative neuritis ndicate operative nerves. At the post-mortem exam in prosthesis, he thinks; if to be hypertrophied, dilated and to [illegible]ntion of bile salts or with fat; it weighed 510 gm. The subperica[illegible], the injury highly developed, especially over the right half of the[illegible] than where the muscles were also somewhat infiltrated with fat without showing any signs of fatty degeneration. Incipient arteriosclerotic changes in the aorta were present. The coronary arteries were normal. An embolus was found in the right pulmonary artery, with an incipient hemorrhagic infarct in the lung. The other organs were found in all essentials normal. The microscopic examination of the a-v bundle showed that it was mixed with fatty tissue with large fat cells, perhaps to a little higher degree than is found on an average; but not outside the normal limits. The fatty tissue was found especially in the main trunk and also in the left branch. The a-v bundle was also somewhat hyperemic (a post-mortem phenomenon), but not especially strongly marked. On the whole, the a-v bundle presented no clear pathologic alterations. In both vagus nerves there were found very important anatomic changes. In unstained preparations from the upper part of the nerves black drops of fat could be seen around the nerve. In sections in which the nerve was longitudinally cut, the fibers were to a large extent brownish-black to black in color. Such black fibers were found partly through long stretches of the nerve, and they were on the whole rather homogeneous, although in places it gave the impression of a kind of accumulation of small granules of different sizes. In places where the section had been made across the nerve, there were, in addition to swollen black nerve fibers, a similar number of more yellowish normal fibers. The middle portion of the neck vagus showed on the whole the same aspect as described above, but the black parts of the nerve fibers were seen to be more extensive, so that the majority of the nerve fibers are black; the black round or cylindric formations were seen on closer inspection to be formed by numerous small granules or fragments. In sections from the lower portion of the nerve (about where the cardiac branches come off), extensive black cylindrical formations were seen, consisting of extremely fine, small, black granules, denced by periodic vomiting, treatment by posterior gastrostomy is eminently and uniformly satisfactory. Pain in such patients may be absent altogether. When vomiting is absent or only occasional, and pain is the symptom for which a patient seeks relief, gastro-enterostomy has its failures. Acute ulcers of the stomach, except when perforating, do not demand surgical treatment; chronic ulcers, on the other hand, do; but what that treatment is to be he is uncertain. Some should be excised, some are cured by gastro-enterostomy, some should be infolded, and possibly some should be left alone by the surgeon. Operations for gastric carcinoma are at the present time unsatisfactory, probably owing to their nonearly recognition. Dilated stomachs, in the absence of associated lesions such as pyloric narrowing or ulceration, may be left unoperated on. Gastric hemorrhages are not to be dealt with satisfactorily by surgical operation. They do better in the hands of the physician. Duodenal hemorrhages, too, are not readily amenable to surgical treatment. Gastro-enterostomy does not meet their urgent indications, although it may contribute to the healing of the ulcers in which the bleeding originates. Chronic duodenal ulcer is a pathologic fact; it is no mere surgical apparition as is sometimes suggested. Its frequency in adult males is remarkable; its diagnosis prior to exploration is highly probable, but by no means sure; its recognition at the time of operation is certain, and its relief by operation is most satisfactory. In Birmingham cancer of the stomach does not appear so often as a sequel of chronic ulceration as it is said to do in many other places. The majority of patients with cancer of the stomach give no account whatever of long-standing or of past indigestions. It appears usually as a primary indigestion in the middle-aged or elderly, and in all such patients Lloyd agrees that by the failure of medical treatment quickly to relieve such indigestion, a suspicion of cancer should be aroused and an exploratory operation at once performed.

As for herniotomy, he says that the most important step of the operation has to do with the sac of the hernia. The neck of the sac should not be ligatured, but the peritoneum beyond the neck, and when this has been done and cut across below the ligature, it matters little whether the sac is removed or not. The closure of rings and canals is said to be a matter of secondary importance; in Lloyd's opinion it should always be done, except in the inguinal hernias of very young children, and well done, too. Lloyd is performing regularly both suprapubic and perineal prostatectomy, and finds that each has its merits, and that neither can claim to be the better for all cases. The suprapubic operative mortality is rather the higher in his hands, probably because the more serious cases have been dealt with by this method. The after-results of both operations are then about the same. Prostatectomy for carcinoma and tubercle has been disappointing in his hands.

4. **Treatment of Fracture of Patella.**—The treatment employed by Maclachlan is as follows: First, a mold is made of the sound knee by taking poroplastic material, 1½ feet long by 6 inches broad, which is softened in boiling water, and then firmly placed on the sound knee. In this way a perfect mold of the knee-cap is taken; this is used as a splint for the fractured patella, the fragments being viced in the cap of the splint. A little cotton-wool is placed in the cap and sufficient to pad the rest of the splint, which extends above and below the knee-joint. Prior to fixing the splint the fragments are strapped into position by adhesive plaster, and longer strips are placed immediately above and below the patella, and drawn in contrary directions to pull the upper and lower fragments together. Lastly, a plaster-of-Paris bandage is put over all. In three weeks the plaster-of-Paris bandage is taken off. The splint is kept on for two weeks, passive exercises begun, and a knee-cap worn for two months, when it is discarded.

Lancet, London

July 29

8 *Present Position of the Medical Profession. R. Saundby.
9 *Mistakes. B. Bramwell.
10 *Address in Surgery. J. Lloyd.
11 Extraction of Cataract. H. L. Eason.
12 *The Appendix; Its Relation to Causation and Surgical Treatment of Affections of the Adnexa. H. M. Jones.
13 Rubella or Measles? D. W. C. Hood.
14 *Successful Case of Ovariotomy and Cesarean Section Performed on the Same Subject at One Sitting. H. B. Mylvaganam.
15 Fatal Case of Acute Mercurial Poisoning. A. W. Burton.

8, 9 and 10. See *British Medical Journal*, July 29, and abstracts 1, 2 and 3 in this issue.

12. **The Appendix.**—Jones advises that the appendix should be examined in every case of celiotomy for adnexal disease. This equally applies to the left adnexa as to the right. When the abdomen is opened for a grave appendix trouble, the adnexa should be examined. The appendix should be removed in every instance in which any abnormality or disease is found or if it be of unusual length, also if from the character of the operation there is a probability of further adhesions forming which may involve the appendix. The severity of the operation, however, will always have to be taken into account, and the influence its prolongation may have in lessening the chances of the patient's recovery.

14. **Ovariotomy and Cesarean Section.**—The operation in this case was performed for the ovarian disease which had become very troublesome. The duration of the pregnancy could not be determined because of the size of the ovarian tumor. The ovarian cyst was tapped and removed and then the section was done and a viable fetus about 8 months old was extracted. Both mother and child lived.

Journal of Tropical Medicine and Hygiene, London

July 15

16 Frequent Occurrence of Physaloptera Mordens as an Intestinal Parasite of Man in Tropical Africa. R. T. Leiper.
17 Seasonal Incidence of Dracontiasis on the Gold Coast. R. T. Leiper.

Quarterly Journal of Medicine, London

July

18 *Etiology of Auricular Fibrillation. C. E. Lea.
19 *Relationship of the Heart-Beat to Pulsus Alternans. J. D. Windle.
20 *Analysis of Gastric Contents. P. N. Panton and H. L. Tidy.
21 *Systolic Pressure at Different Points of the Circulation in the Child and the Adult. L. Findlay.
22 *Contribution to the Study of the Function of the A-V Bundle. P. F. Holst and G. H. Monrad-Krohn.
23 Essential Renal Hematuria. W. H. White.
24 Use of Tuberculin in So-Called Tuberculous Glands. G. E. Waugh.

18. **Etiology of Auricular Fibrillation.**—Rheumatic or choreic disease preceded auricular fibrillation in 56.6 per cent. of the cases examined by Lea. The most frequent lesion to which it gave rise being mitral stenosis (43.6 per cent. of cases with rheumatic history). Non-rheumatic cases presented auricular fibrillation in 43.4 per cent., the most frequent cardiac lesion being cardio- or arteriosclerosis, 57.1 per cent. The age incidence of mitral valve disease, with or without preceding rheumatism, was 38.2 years; the age incidence of cardiosclerosis was 53.9 years in rheumatic cases, 56.9 years in non-rheumatic. Females were more frequently subject to valvular disease than males in the proportion of 16 to 10; males were more subject to arterio- or cardiosclerosis, 15 to 8. Of all cases of auricular fibrillation, 32.8 per cent. occurred in cardiosclerosis, 31.3 per cent. in mitral stenosis, and 23.8 per cent. in cardiac dilatation. Influenza was noted as having occurred in 39.3 per cent. of non-rheumatic cases. Electrocardiographic records confirmed, in all cases examined, the polygraphic records.

19. **Heart-Beat and Pulsus Alternans.**—In all cases but one observed by Windle no alternation was present in records taken from the clinical apex beat, while in all disparity in force of alternate radial pulses was decided, and at times extreme. In the exceptional case the stronger beat of the heart-curve coincided with the weaker of the pulse. It is suggested that this anomaly is explicable on the assumption that the musculature of the ventricle producing the apex beat is not a part of that which drives the blood out of the left ventricle, otherwise it is inexplicable that the stronger beat of the ventricle should cause the weaker pulse, or that ventricular contractions equal in strength, beat by beat, should cause an alternating pulse. In two patients the heart's pulsation was recorded from two distinct areas: (a) In one case the cardiograms have the character of a left and right ventricular

impulse, respectively. The radial pulse was markedly alternating; but there was no evidence in the cardiograms of variations in strength of the ventricular contraction. (b) In the other case pulsation was recorded from the clinical apex-beat, and also from the fourth left intercostal space about 1½ inches from the left edge of the sternum. The cardiogram from both situations had the characters of left ventricular pulsation; that obtained from the fifth space at no time showed alternation in force. The cardiogram from the fourth intercostal space continuously alternated, except for brief periods.

The relationship between the alternating beats of the cardiogram and those of the radial pulse were not constant, the height of the respective waves being at times opposed, at others similar; at others, again, alternation was present in the heart-beat curve, whilst that of the radial pulse was equal; the reverse relationship occurred. Alternation was often pronounced in records of the jugular pulsation of this patient; invariably the larger wave corresponded to the higher wave of the radial pulse. In curves having character of right ventricular pulsation no evidence of alternation was present at any time. No variation in the intensity, pitch or duration of the heart-sounds or murmurs coincident with alternation of the pulse was detected in any case. While the observations lend some support to the view of Hering, that in alternate heart-beat a partial systole of the ventricle occurs, they also show that in alternating pulse it is not always possible, in clinical cases, to determine the fact of alternating heart action.

20. **Analysis of Gastric Contents.**—The investigations made by Panton and Tidy fall into two parts: the first deals with the routine examination of test-meals in a series of cases, the second consists of an inquiry into the various methods of examining test-meals and the meaning of the results obtained. In all 331 cases were examined: Carcinoma of stomach, 43 cases, operated 30. Gastric ulcer, 87 cases, operated 49. Duodenal ulcer, 36 cases, operated 21. Other gastric cases not operated, 62. Various conditions, 103 cases, operated 36. The results obtained follow: In normal gastric contents Günzberg's reaction is positive, free hydrochloric acid varies between 0.08 and 0.12, and the acidity lies between 40 and 50. In carcinoma of the stomach Günzberg's reaction is nearly always negative, i. e., free hydrochloric acid is absent. The average of the total acidity is 26. Some dimethyl acidity is often present. In the rare cases in which carcinoma is grafted on a simple ulcer, free hydrochloric acid is usually present, and the total acidity may be normal or even above normal. Thus, in these cases, the analysis often resembles that found in simple gastric ulcer. In simple gastric ulcer Günzberg's reaction is positive, the average of the free hydrochloric acid is 0.13 and the total acidity, 58. Free hydrochloric acid may be absent after a severe hemorrhage or after a previous gastrojejunostomy. In duodenal ulcer the average of the free hydrochloric acid is 0.17, and the total acidity, 69. Free hydrochloric acid is usually absent in cases of achylia gastrica, chronic alcoholic gastritis, severe anemia, chronic pulmonary tuberculosis, and in some forms of chronic dyspepsia. In these latter cases relief of gastric symptoms usually follows treatment by acids. Cases of hyperchlorhydria are commonly relieved by alkalies. It is not suggested by the authors that the diagnosis and treatment of gastric cases should depend on the result of test-meals alone, but they find that the simple analysis described affords very reliable information when taken in conjunction with clinical observation, and particularly with a carefully taken history.

21. **Systolic Pressure.**—The conclusions which Findlay draws from his study of well and sick children are, briefly: During childhood and youth the systolic arterial pressure is fairly uniform at different points of the circulation. In adult life the peripheral systolic pressure is lower than the central, and the difference between them increases with age. The difference greater than normal between the central and peripheral systolic pressures in cases of hypertension—from disease or experimentally induced—supports the idea that the behavior of the pressure and its variations depends on changes in the elasticity of the vessel wall.

22. **Function of A-V Bundle.**—The first case cited by the authors was one of Adams-Stokes syndrome with chronic bradycardia for many months, interrupted by short paroxysms of tachycardia. The post-mortem microscopic examination of the heart showed a destruction completely across the chief trunk of the a-v bundle. The heart was enlarged throughout (weight 590 gm.), the mitral valve calcified and the mitral ostium somewhat contracted. The calcareous infiltrations were continued into the septum membranaceum; on the right side this calcification could be seen as a projecting knot, the size of a pea and calcified right through, occupying the front part of the septum membranaceum. Also the aortic valves, especially the left were calcified so that the calcareous encrustations from the mitral valve and septum membranaceum were continued directly to the aortic valves. Both of the coronaries were calcified, but in no place obliterated or contracted. Microscopically, the muscles of the heart appeared normal, excepting certain small fibrous scars in the left ventricle. The macroscopic appearance of the calcareous knot and its situation alone made it highly probable that the main trunk of the a-v bundle must be damaged by the calcareous masses to a greater or lesser extent. The microscopic examination also showed that the main trunk of the a-v bundle had disappeared entirely, leaving not a trace of its normal tissue in the great calcareous knot. The authors assume that the relationship between auricle and ventricle along the a-v bundle must have been quite broken for a long time before death, and when also all the signs of a complete block have long been present, there occur attacks of great frequency of the pulse. The tracings from the last weeks of the patient's [illegible] show that the stimulus conduction from auricle to [illegible] reflex must have been to some extent restored, thoug[illegible] in two other the post-mortem a little later makes it m[illegible] bradycardia no that the main trunk of the a-v bundle m[illegible]umption of injury to say, cut across by the large calcareous k[illegible]opment of jaun-

In the second case there was a normal urine. In itself, strongly pronounced degenerative neuritis ndicate operative nerves. At the post-mortem exam in pro[illegible]thesis, he thinks; if to be hypertrophied, dilated and to [illegible]ntion of bile salts or with fat; it weighed 510 gm. The subperica[illegible] the injury highly developed, especially over the right half of th[illegible] than where the muscles were also somewhat infiltrated with fat without showing any signs of fatty degeneration. Incipient arteriosclerotic changes in the aorta were present. The coronary arteries were normal. An embolus was found in the right pulmonary artery, with an incipient hemorrhagic infarct in the lung. The other organs were found in all essentials normal. The microscopic examination of the a-v bundle showed that it was mixed with fatty tissue with large fat cells, perhaps to a little higher degree than is found on an average; but not outside the normal limits. The fatty tissue was found especially in the main trunk and also in the left branch. The a-v bundle was also somewhat hyperemic (a post-mortem phenomenon), but not especially strongly marked. On the whole, the a-v bundle presented no clear pathologic alterations. In both vagus nerves there were found very important anatomic changes. In unstained preparations from the upper part of the nerves black drops of fat could be seen around the nerve. In sections in which the nerve was longitudinally cut, the fibers were to a large extent brownish-black to black in color. Such black fibers were found partly through long stretches of the nerve, and they were on the whole rather homogeneous, although in places it gave the impression of a kind of accumulation of small granules of different sizes. In places where the section had been made across the nerve, there were, in addition to swollen black nerve fibers, a similar number of more yellowish normal fibers. The middle portion of the neck vagus showed on the whole the same aspect as described above, but the black parts of the nerve fibers were seen to be more extensive, so that the majority of the nerve fibers are black; the black round or cylindric formations were seen on closer inspection to be formed by numerous small granules or fragments. In sections from the lower portion of the nerve (about where the cardiac branches come off), extensive black cylindrical formations were seen, consisting of extremely fine, small, black granules, lying spread in the larger bundles. Examination of the right vagus showed the same appearance as that described for the left. In hematoxylin stained sections no signs of inflammation were to be seen. The right and left middle cervical sympathetic ganglion and the cardiac sympathetic ganglion, prepared in exactly the same manner as the vagus, showed nothing abnormal.

The medulla oblongata showed in the upper half of the fourth ventricle and in the lower half no degenerated nerve fibers. The ganglion cells at the bottom of the fourth ventricle, amongst which are the vagus nuclei, showed an extremely finely granulated grey-black coloration (lipochromate), but no signs of degeneration. The hypophysis showed its normal structure without any sign of inflammation or degeneration. The chief interest in this case lies in the fact that in all probability it must be regarded as a case of Adams-Stokes disease of vagal origin. The authors hold that the muscular (extra-fascicular) type of the disease of Adams-Stokes that is especially described by Pletnew and Nayago, has still to be proved in man.

Clinical Journal, London

July 26

25 Sore Throat. H. Tilley.

Medical Press and Circular, London

July 26

26 Dysphagia. A. Wylie.
27 Two Cases of Metastatic Ocular Inflammation Associated with Bacillus Coli Toxemia. A. Lawson.
28 The Training of the Indian Child in Health Matters as Part of General Education. D. Walsh.
past ase of Acute Pancreatitis, with Surgical Conditions of the ancreas J. J. Clarke.
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relieve such ind *May, V, No. 5, pp. 481-598*
aroused and an upture of Hydroceles. L. Thévénot.
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of the operation use Chorio-Epitheliomas. D. Angier and J.
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Presse Médicale, Paris

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July 5, XIX, No. 53, pp. 561-568

34 *Traumatic Spondylitis. (Maladie de Kümmel-Verneuil.) L. Imbert and F. Vial.

July 8, No. 54, pp. 569-576

35 *Digitalis and Bundle of His. A. Martinet.
36 *Treatment of Tuberculosis of the Kidney. L. Bernard.

July 15, XIX, No. 56, pp. 585-592

37 *Vaccine Therapy. (Vaccinothérapie par les vaccins irradiés.) M. Renaud.

34. **Traumatic Spondylitis.**—Imbert and Vial warn against the deceptive subsidence of symptoms after an accident involving the spine. After the first period of local pain and soreness, with possibly some paralysis of the sphincters and slight exaggeration of the leg reflexes, all the symptoms may subside and the patient may be apparently quite well for several weeks or months. But then the site of the contusion gradually grows painful again and girdle pains develop with incontinence or retention of urine, constipation or diarrhea, etc., and the patient stoops forward, the curvature of the spine being generally of the scoliotic type. Treatment should be along the same lines as for Pott's disease, striving to immobilize and relieve the spine of all weight-bearing. Reclining in the dorsal decubitus with a cushion under the lumbar region is indicated during the first stage, and also if the patient is seen at the onset of the third phase; the condition should be supervised with the Roentgen rays during the quiescent period if possible. The final outcome is generally ankylosis, and there may be industrial incapacity equivalent to 25 or 50 per cent. of the original wage. The characteristic feature of this form of injury of the spine, known as Kümmel-Verneuil's disease, is the period of latency preceding the development of the curvature.

35. **Digitalis and Heart-Block.**—Martinet presents arguments to sustain his assertion that digitalis is contra-indicated in case of partial heart-block while it may be indicated in total heart-block. In case of mitral stenosis, digitalis is contraindicated if the presystolic souffle is missing, the jugular or liver-pulse is synchronous with the cardiac systole, and the heart occasionally skips a beat, with a curve showing disturbance in conductibility.

36. **Treatment of Tuberculosis of the Kidney.**—Bernard discusses whether the progress realized in tuberculin treatment and other medical measures in the last fifteen years justifies reliance on medical measures alone in renal tuberculosis. His conclusions are that nephrectomy is still the one great reliance and medical measures come into their own only when operative measures are impracticable for any reason.

37. **Vaccine Therapy.**—Renaud prepares his vaccine from selected cultures of the bacillus of typhoid fever by emulsionizing a forty-eight-hour growth on gelose with physiologic salt solution in the proportion of 5 mg. of culture to the cubic centimeter. This emulsion is submitted to the action of the ultraviolet rays for thirty minutes, by which the bacteria are killed. He finds that animals, guinea-pigs or rabbits are immunized by moderate or large non-lethal doses more readily than by small doses. The inoculation entails no risk of infection and the result is the rapid establishment of an immunity with the appearance of antibodies in the serum. The author has used his vaccine in forty clinical cases, which he will report later.

Semaine Médicale, Paris

July 12, XXXI, No. 28, pp. 325-336

38 *Sodium Chlorid as Factor in Edema Induced by Large Doses of Sodium Bicarbonate. F. Widal, A. Lemierre and Cotoni.

July 26, XXXI, No. 30, pp. 349-360

39 *Cleaning and Scraping the Uterus After Septic Abortion. R. De Bovis.

38. **Edema Following Large Doses of Sodium Bicarbonate.**—Widal, Lemierre and Cotoni describe some clinical experiences and experiments on normal persons which demonstrate that ingestion of sodium bicarbonate in large amounts checks the elimination of sodium chlorid. As the sodium chlorid is thus retained, water is retained with it. This explains the tendency to dropsy observed after large doses of sodium bicarbonate have been taken in the course of diabetes. It is not the bicarbonate that causes the dropsy; the retained chlorid is responsible for it. Under the bicarbonate treatment the output of sodium chlorid in the urine rapidly declines, showing how it is being retained in the body and edema develops in consequence, but as soon as the bicarbonate is suspended, and the elimination of sodium chlorid proceeds as usual, then the dropsy rapidly drains away. The proportion of water in the organism at any given time is thus dependent not only on the amount of sodium chlorid being ingested and on the more or less perfect functioning of the apparatus engaged in the elimination of the chlorids, but it depends also on the ingestion of sodium bicarbonate. Probably the bicarbonate is not the only substance which possesses this property. The chlorid is retained or poured out in a flood at will, just by giving or withholding the bicarbonate. Although it upsets the metabolism to such an extent yet it does not seem to cause any material lesion or permanent modification of the nutrition. As soon as it is suspended the chlorid metabolism proceeds to right itself promptly and effectually. The data reviewed emphasize anew the importance of sodium chlorid in the production of edemas and the connivance of the two substances in producing certain effects.

39. **Cleaning and Scraping the Uterus After Abortion.**—De Bovis discusses the recent contention of Winter that curettage of the uterus after abortion should be reserved for cases in which such complications as hemorrhage render it necessary, but that the physician in ordinary cases should wait until the infection has subsided before he attempts to interfere to clean out the uterus. De Bovis concludes that while there are good arguments on Winter's side the contention should not be pushed too far. The rule should be retained during the primary discussion, to prefer cleansing to curettage and to be chary of intervention, leaving the milder infections alone, in spite of the fact that they sometimes develop an unexpected malignancy. The accumulation of more facts, he hopes, will clear the matter up; if Winter is right, one cannot but admire the boldness which led him to attack so well established a therapeutic dogma.

Archiv für klinische Chirurgie, Berlin

XCV, No. 2, pp. 245-493. Last indexed August 12, p. 594

40 *Trauma a Factor in Pathogenesis of Kidney Tuberculosis. (Trauma und Nierentuberculose. Trauma und Organtuberculose.) F. Pels-Leusden.
41 *Diagnosis of Chronic Duodenal Ulcer. A. Neudörfer.
42 *Operative Treatment of Inflammatory and Functional Disturbances of the Large Intestine. F. de Quervain.
43 *Patching and Bridging in Plastic Surgery. (Neue Wege der plastischen Chirurgie.) F. König. (Experimente über Verschluss von Wunden und Ueberbrückung von Defecten schleimhauttragender Körpercanäle und- höhlen durch freie Autoplastik.) F. Hohmeier.
44 *Changes in Fundus of Eye in Cases of Rupture of Liver. (Veränderungen am Augenhintergrund bei Fällen von Leberruptur.) A. Tietze.
45 *Diagnosis of Injury of Liver. (Zur Diagnose der Leberverletzungen.) H. Finsterer.
46 *Treatment of Varices by Anastomosis between the Saphena and Femoral Veins. E. Hesse and W. Schaack.
47 Intestinal Gas Cysts. (Ueber Pneumatosis cystoides intestinorum insbesonder deren Aetiologie.) H. Miyake.
48 Intestinal Sarcoma. (Zur Kenntnis der Ileocecalsarkome.) S. Goto.
49 General Principles for Treatment of Wounds. W. Noetzel.

40. Experimental Research on Tuberculosis of the Kidney.—Pels-Leusden has been experimenting for years to study the mechanism of the development of tuberculosis in one kidney, and here gives the detailed reports of his experiments. He used goats, sheep and dogs and injected the bacilli directly into the artery supplying the organ, without obstructing the flow of blood. Success is possible only when small amounts of very virulent bacilli are used for the purpose. Direct trauma as by a contusion is not necessary for development of the renal tuberculosis, but such a trauma may mobilize bacilli and entail a tuberculous process at some remote point.

41. Chronic Duodenal Ulcer.—Neudörfer reports eight case-histories, all of which sustain his assumption that if a duodenal ulcer does not heal completely under a single systematic course of dieting as for gastric ulcer, an operation is not only justified but imperative. According to the records, operative treatment cured the tendency to duodenal ulcer in from 80 to 90 per cent. of all the cases. The best results seem to be attained with simple gastro-enterostomy, generally supplemented by closing up the pylorus. One of his patients had an ulcer in the stomach with one in the duodenum, and she still has the same symptoms. This may be due to the fact that he did not close up the pylorus in this case or he may have overlooked another ulcer.

42. Operative Treatment of Disturbances in the Large Intestine.—Quervain reports the outcome of an operation eight years ago on a woman with abnormally sagging long transverse colon with mucomembranous inflammation and gallstones. He removed the cecum and ascending colon which put an end to all the symptoms on the part of the intestine. He reviews similar cases on record, the results showing that the colon cannot be resected with a prospect of normal stools; diarrhea or constipation seems to be the rule afterward or they may alternate. His final conclusion is that ileosigmoidostomy is not so good an operation as what he calls ileotransversostomy and in future he will give the preference to the latter.

43. Plastic Surgery.—König has been experimenting with a patch applied outside after suture of a defect in a mucosa-lined cavity. The flap of tissue applied grows into place so solidly that he calls the method "soldering" (Verlöthung). The first time he applied this method was in the reinforcing of a suture after an operation for abdominal hernia; the tissues were so thin and fragile that even the stitch-holes seemed to invite recurrence. He reinforced the suture with a thin flap of periosteum and bone from the tibia, but since then has used the periosteum alone and has now a record of fourteen abdominal and scar hernias which he has safely patched and soldered up in this way. He experimented on dogs to apply this patch method when there were defects in hollow organs and also as a tubular bridge when there was an actual gap in a tubular organ. He gives illustrations of his various experiments and operations in which he thus patched and soldered the bladder and urethra or the rectum. The method is especially adapted for defects after resection of cancers in the rectum. He has found fascia tissue the best for the purpose, obtaining it through a separate incision, not far from the point where it is to be used. The main point is to have the flap in smooth contact all over its surface, so he always sutures the soft parts together above it to press it down into its bed. No tampon should be used. He adds that it is simply amazing to see how the free transplanted flap heals into its new place. Hohmeier reports operations on the same principle on the esophagus, bladder and trachea of dogs, all with promising outcome.

44. Changes in the Fundus of the Eye with Rupture of the Liver.—Tietze has operated in eight cases of rupture of the liver in the last five years. In two of the cases the fundus of the eye showed the same changes to which we are accustomed with albuminuric retinitis. These patients were men of 18 and 30 with severe contusion of the liver region and rupture of the liver requiring suture. In one case the changes in the fundus had subsided by the end of the second day. He queries whether the changes were due to compression or to the anemia.

45. Diagnosis of Injury of the Liver.—Finsterer noticed bradycardia as a striking symptom in two cases of injury of the liver; it seemed directly contrary to what would have been anticipated with the acute anemia. In one case the liver had been ruptured by the kick of a horse and the pulse was only 48. In the other case the liver had been sutured and the pulse was 52. Several writers have mentioned bradycardia with injury of the liver, and ascribe diagnostic importance to it. Finsterer experimented on animals to determine the influence on the pulse of injury of liver and spleen. The results with twenty animals showed that bradycardia is a characteristic symptom of injury of the liver, but that its absence does not exclude injury of this organ. The local pains with injury of the liver may relate to the right shoulder, and the reflex rigidity may extend over the entire abdomen. In two other cases of contusion of the liver region with bradycardia no operation was deemed necessary, but the assumption of injury of the liver was sustained by the development of jaundice and the appearance of bile salts in the urine. In itself, therefore, bradycardia does not necessarily indicate operative treatment. It is important also in prognosis, he thinks; if there is no bradycardia in spite of absorption of bile salts or if, with extreme anemia, the pulse is 70 or 80, the injury requires an operation at once, the prognosis being graver than when the pulse is abnormally slow.

46. Venous Anastomosis in Treatment of Varices.—Hesse and Schaack describe experiments on the cadaver and on animals which show the feasibility of implanting the saphenous vein in the femoral vein, 10 cm. below its normal site, in the treatment of varices. The arrangement of the valves and the anatomic and physiologic conditions tend to restore normal conditions in the venous circulation. Delbet published in 1906 eight cases and has reported sixteen since in which he has applied this method, but since then it does not seem to have been applied, possibly owing to the little notice paid Delbet's communication and to the tedious technic. Hesse and Schaack here report the successful application of the method in twenty-six cases. They give the details of the first twenty-three cases and commend the operations as restoring physiologic conditions. If the fine results attained to date prove permanent the method has a future. In their cases all the varicose ulcers had healed, all the edema had subsided and the patients were free from all subjective disturbances. Only one case was a failure. The wound healed but by the end of a week deep infection was evident and the patient succumbed the twenty-sixth day to suppurative thrombophlebitis of the two veins, with superposed pneumonia.

Berliner klinische Wochenschrift

July 17, XLVIII, No. 29, pp. 1313-1360

50 Alleged Combustible Carbohydrate for Diabetics. (Beitrag zur Chemotherapie der Zuckerkrankheit.) G. Rosenfeld.
51 *Operative Treatment for Pendulous Abdomen. (Die Operation des Fett-Bauches.) R. Jolly.
52 *Differential Diagnosis of Benign and Malignant Hour-Glass Stomach. J. Kretschmer.
53 The Duodenal Tube. M. Gross.
54 *Influence of Calcium Salts on Production of Effusions. R. Levy.
55 Position as Aid in Diagnosing Tricuspid Defect. H. Stern.
56 Continuous Suction in Treatment of Nasal Disease. A. Peyser.
57 *Anatomic and Clinical Bases for Operative Treatment of Pulmonary Embolism. H. Ritzmann.
58 Endo-Urethral Massage. J. Sellei.

July 24, No. 30, pp. 1361-1408

59 Rhinoplasty. (Plastischer Ersatz des Nasenseptums.) O. Hildebrand.
60 Tissue Culture in Vitro (Kultur der Gewebe ausserhalb des Organismus.) A. Carrel.
61 Elimination of Salvarsan. H. Frankel-Heiden and E. Navassart.
62 *Consanguineous Ectodermal Anomalies in Development. (Untersuchungen an drei blutsverwandten Personen mit extodermalen Hemmungsbildungen, besonders des Hautdrüsensystems.) W. Wechselmann and A. Loewy.
63 Pulmonary Tuberculosis. E. Aufrecht.
64 Pathognomonic Blood Findings in Pernicious Anemia. (Definition. hamatologisches Blutbild und pathognostisch-differentialdiagnostische Blutkriterien der perniciösen Anämie.) A Pappenheim.
65 Urogenital Involvement in Scleroderma. (Beteiligung des Urogenitalapparates bei einem Fall von Sklerodermie.) G. Ehrenberg
66 Tracheopathia Osteoplastica. I. Haga.

51. **Correction of Pendulous Abdomen.**—Jolly reports two cases in which he has relieved patients from pendulous belly by resecting the pendant portion. A curving incison was made near the umbilicus from groin to groin and then another, with a sharper curve, is made below, both incisions starting at the same point on each side and the two outlining a crescent. The pendant mass of abdominal skin and fat thus circumscribed is cut out and the upper and lower incisions are sutured together. He gives an illustrated report of his first case; the lips of the wound left by resection of all the tissues down to the fascia were held together with forty Michel clips. One of his patients had long had painful disturbances from the pendulous belly as she strove to keep it under control with corsets. Jolly has been able to find in the literature only two communications on operative correction of pendulous belly, one from Demars, a French surgeon, and one from Schulz, a Russian, who reports three cases. The linear scar left from the transverse crescent incisions is scarcely perceptible; there is little, if any, bleeding at the operation, and Jolly regards it as simple and entirely harmless, possibly more so than strenuous measures sometimes undertaken by women to reduce their flesh to get rid of their sagging belly and which rarely accomplish their purpose, while this is promptly realized by the simple operation described with illustrations.

52. **Differentiation of Benign and Malignant Hour-Glass Stomach.**—Kretschmer gives some illustrations of the findings with radiography of hour-glass stomachs which demonstrate, he thinks, that it is safe to assume malignant disease when the hour-glass constriction is horizontal and vertical, the radiograph showing an extensive horizontal and vertical defect in the outline of the stomach. With non-malignant anomaly the constriction is more or less horizontal. With the non-malignant hour-glass stomach the upper sac empties itself into the lower, while with malignant disease both halves of the stomach seem to empty themselves regularly together, without the lower sac filling up first.

54. **Influence of Calcium Salts on Production of Effusions.**—Levy's experimental research failed to demonstrate that calcium chlorid has any inhibiting action on the production of effusions.

57. **Operative Treatment of Pulmonary Embolism.**—Ritzmann has found by numerous experiments on the cadaver that Trendelenburg's operation to expose the pulmonary artery to remove an embolus is entirely practicable from the anatomic standpoint although none of the five patients thus operated on was permanently cured. Ritzmann has been studying the fifty-five cases of an embolus in the pulmonary artery which he has encountered during the last 6,000 necropsies. The embolism followed operations on the trunk or legs in six of the thirty-five cases of which the details are known: it followed injuries of the legs in three others, varicose disturbances in the legs in seven, anemia and cachexia in eight, and it occurred with a heart defect in three. In only six cases was the diagnosis of pulmonary embolism made during life, and in these cases the embolism proved rapidly fatal. In all the others there was an interval of from half an hour to forty-eight hours between the onset of the symptoms of embolism and the fatal termination. An interval of from three to six hours was the rule, and it is probable that the embolus gradually increased in size or that the embolism occurred in waves. This is evidenced by the transient improvement under camphor, and the discovery in the smaller arteries at necropsy of minute emboli evidently older than the big one that proved fatal. The data show thus, he remarks, that the diagnosed embolism proved too rapidly fatal for any operative intervention, and that in the cases with a sufficiently long interval for operative interference to have been successful, the nature of the disturbances had not been recognized. The embolus was generally located in the main trunk of the artery or one of its chief branches, and from the pathologic-anatomic standpoint might easily have been removed. The great difficulty therefore in the way of successful operative treatment of pulmonary embolism is the failure to recognize it in time. Bloody sputum at the beginning of the disturbances is an almost constant symptom. The mechanical factor should be considered in diagnosis as the embolism occurred almost invariably after sitting up in bed, getting up, changing the dressings, or after the agitation stage of general anesthesia. An instance has been reported recently in which the embolism followed application of a constricting band to induce hyperemia. The condition of the heart and lungs when the embolism occurs is a decisive factor in the outcome, as also conditions favoring thrombosis. On suspicion of pulmonary embolism a surgeon who has mastered Trendelenburg's technic need not hesitate to apply it to save an otherwise doomed patient.

62. **Consanguineous Anomalies of Development.**—The authors report a peculiar anomaly of development of the ectoderm which was transmitted only to the male offspring through the female; none of the developmental errors were at any time noticed in the females, nor were all the males affected. The original progenitor of the patients whose cases are reported was twice married. By her first husband she had four children, only one of whom was affected by the anomaly to be described. One of the well children gave birth to fifteen boys, four of whom showed the anomaly. By her second husband the original progenitor gave birth to eleven children, two of the boys showing the anomaly. One of the well children gave birth to one child, a boy, who also showed the anomaly. The congenital maldevelopment consists in a hypotrichosis, a saddle nose, misshapen ears, absence of teeth, in part or entire, with misformation. The fingernails were normal. The growth of hair on the head, face and body was exceedingly sparse. The eyebrows were absent, while the eyelashes were well developed. The beard was very sparse and only a few hairs were present on the chest and in the axillæ. The skin was normal [illegible] or but appeared to be rather loose and was very dry. T[illegible]italia were well developed. The ears were of the type kn[illegible] as satyr ear. There were no evidences of syphilis; th[illegible] Wassermann reaction was negative. When teeth were present they were flask-shaped. The jaws were atrophic and did not contain teeth germs. Although the patients could not be called imbeciles their mental development was noticeably deficient. None of them perspired.

Centralblatt für die Grenzgebiete der Medizin und Chirurgie, Jena

June 24, XIV, No. 9, pp. 321-368

67 *Tuberculosis of the Kidney. (Ueber Nierentuberkulose.) K. Frank.
68 Nodular Rheumatism. O. Willner.

67. **Tuberculosis of the Kidney.**—Frank reviews, with comment, 527 articles bearing on renal tuberculosis. The mortality in 1,331 nephrectomies for tuberculosis has been 9.3 per cent. in the years since 1900 in the experience of thirty-five surgeons, including Kelly's thirty-five cases (1904), with 14.2 per cent. mortality, Rovsing's 106 with 5.7 per cent. mortality (1909), and Albarran's 188 cases with 3.3 per cent. mortality (1908). The mortality has grown constantly less with the progress in diagnosis and technic; Pousson, for instance, reported in 1902 a mortality of 33.7 per cent. in 335 operations, while it was only 11.6 per cent. in the forty-three operations reported in 1908. In the first half of the last decade the mortality in 137 operations was 18.2 per cent., while it was only 8.2 per cent. in the 1,194 operations 1905-1910. The ultimate outcome of many of the cases is also recorded. The results seem to show that there is little danger of ascending non-tuberculous pyelonephritis from the bladder after removal of one kidney. It occurred only once in Israel's experience. Heal-

ing of the bladder lesions had better be promoted by local measures after the nephrectomy. Rovsing reported spontaneous cure of the tuberculous lesion in the bladder in fourteen cases; in twenty-five others there was propagation of minute foci or the lesions persisted unmodified. He advises after waiting a little to inject, after the bladder has been well rinsed out, 50 c.c. of a fresh and warm 6 per cent. solution of phenol, allowing it to be retained for two or three minutes in the bladder and then evacuated, repeating this until the solution comes away rather clear. He repeats this at longer and longer intervals; the course requires six or eight weeks. The measure is painful and may require injection into the bladder of some sedative. An opium or morphin suppository is given afterward. Occasionally signs of phenol poisoning were observed, black urine, nausea and vomiting, but all transient and never serious. The treatment proved successful in a number of apparently hopeless cases, and Lichtenstern, Bonamone and Lower have also reported good results with it, but Rafin and Stossmann advise against local measures as useless and liable to do harm. Hunnêr found it necessary to make an opening from the bladder into the vagina to relieve the disturbances after nephrectomy in one case; sitz baths were often found useful also.

Deutsche medizinische Wochenschrift, Berlin

July 20, XXXVII, No. 29, pp. 1337-1376

69 Salvarsan. E. Hoffmann and J. Jaffé.
70 *Arsenic and Iron in Chlorosis. F. Seiler.
71 Roentgenotherapy of Myoma of Uterus. E. Schmidt.
72 Roentgen Irradiation of Thyroid in Thyroidism. A. Simon.
73 *Phenolphthalein Test for Occult Blood in Feces. R. Goldschmidt.
74 *Tendon Stretching for Paralytic Deformities. (Sehnenentspannung bei Lähmungsdeformitäten.) W. Böcker.
75 Veratrum Viride in Eclampsia Gravidarum. E. G. Zinke.
76 Recent Methods of Diagnosticating Malignant Growths. H. Hirschfeld.

70. **Effect of Arsenic in Chlorosis.**—The effect of iron and arsenic and of both combined in chlorosis was studied by Seiler in thirty-three cases. In thirteen cases arsenic alone, in twelve cases iron only, and in eight cases iron and arsenic in combination were given. The arsenic was given in the form of arsenious acid, 0.005 to 0.01 gm. in pill form, or injected subcutaneously. The results were *nil.* While the hemoglobin percentage was a little higher in some cases after two or three weeks' treatment, the number of red cells was on the average reduced. Therefore it is concluded by the author that chlorosis should not be treated with arsenic alone. The patients who received the iron treatment were given a modified Blaud's pill for four weeks. The results on the whole were rather satisfactory. The hemoglobin percentage was markedly increased, almost doubled, whereas the number of erythrocytes was increased to normal. When both iron and arsenic were administered the result was a most astonishing one. For instance, if at the beginning of the treatment the hemoglobin was 37 per cent. and the erythrocytes, 3,000,000, at the termination of the treatment the findings were hemoglobin, 96 per cent.; erythrocytes, 5,000,000. It is quite evident, therefore, that the proper treatment of chlorosis is to use a combination of iron and arsenic.

73. **Phenolphthalein Test for Occult Blood in Feces.**—Goldschmidt confirms Boas' findings with reference to the value of the phenolphthalein test for detecting occult blood in the feces. He believes that this is the best test for the general practitioner because it is performed easily and quickly and with almost no apparatus.

74. **Surgery of Paralytic Deformities.**—Böcker advocates the transplantation of tendons for the correction of all paralytic deformites of the feet. However, this should not be undertaken until thorough stretching of the tendons has, beyond question, failed to produce any result. If electricity fails to produce any reaction in the muscles involved a central paralysis is, of course, present and then, depending on the condition of the muscle fibers, a corrective operation should be undertaken. The author reports several illustrative cases. In one of these there was complete paralysis of the peronei, tibialis anticus and extensor digitorum communis. He transplanted the flexor hallucis longus to the peronei and the extensor hallucis longus navicular bone. The tibialis anticus was transplanted to the cuboid bone. The result was satisfactory.

Münchener medizinische Wochenschrift

July 18, LVIII, No. 29, pp. 1545-1600

77 Trauma and Meningitis. H. Merkel.
78 *Esophagoplasty. E. Lexer.
79 Securing Pure Cultures of Spirochæta Pallida and Spirochæta Pertenuis. H. Noguchi.
80 Dilatation of Cervix for Operative Purposes and to Produce Abortion. (Erweiterung des Gebärmutterhalses zu gynäkologischen Zwecken und zur Einleitung des künstlichen Aborts.) K. Hegar.
81 Pituitrin as a Styptic in Gynecology. (Pituitrin als gynäkologisches Styptikum.) H. Bab.
82 *Local Anesthesia of Brachial Plexus. (Anästhesierung des Plexus brachialis bei Operationen an der oberen Extremität.) G. Hirschel.
83 Accidents and Complications in Orthopedic Surgery. (Unfälle und Komplikationen bei orthopädischen Operationen.) I. Wierzejewski.
84 Syphilitic Spastic Paralysis After Salvarsan. (Spastische Spinalerkrankung bei Lues nach Salvarsan.) M. Juliusberg and G. Oppenheim.
85 *Rheumatoid Arthritis Due to Measles in an Infant. (Masernrheumatoid im Säuglingsalter.) M. Feibelmann.
86 Eye Affections in Acne Rosacea. R. Hilbert.
87 *Acoustics of Heart Tones. (Cardiophone.) S. Lilienstein.
88 *Inversion of Appendix Vermiformis. O. Langemak.
89 *Relationship Between Hyperpigmentation of Skin in Addison's Disease and the Adrenal Function. (Hyperpigmentierung der Haut bei Morbus Addisonii und der Funktion der Nebennieren.) G. Stümpke.
90 Test for Salvarsan in Urine. J. Abelin.
91 Errors in Serodiagnosis of Echinococcemia. (Fehlerquelle bei der Serodiagnose der Echinokokkusinfektion.) A. Brauer and A. Israel.

78. **Esophagoplasty.**—The unsuccessful outcome of a case of esophageal carcinoma in which the patient was operated on according to the method of Roux, led Lexer to modify the procedure by substituting for the piece of intestine a skin flap. Two patients operated on according to this method in 1903 and 1904 got along very nicely, the wounds healed kindly without fistula formation and function was perfect. Only the neck portion of the esophagus is formed of skin; for the remaining portion the intestine is used according to the Roux method. In November, 1907, Lexer extended this procedure so that the entire esophagus was rebuilt from skin. The incision was begun 2 fingerbreadths above the sternal notch extending 6 centimeters to the left of the median line. It was then continued downward 3 fingerbreadths below the margin of the ribs, then extending inward to the median line. This huge skin flap was then separated from the underlying tissues and rolled up to the right so as to form a tube with a lumen large enough to admit the entire finger, the epidermis being on the inside. The skin of the chest was then loosened by undermining so that it could be drawn together covering the defect made by the flap and thus burying the skin tube completely. About a month afterward the lower mouth of this tube was anastomosed with the stomach and when healing had occurred there was a continuous patulous duct from the neck to the stomach. Lexer had contemplated making an anastomosis between the pharynx and esophagus but the patient succumbed to gangrene of the lungs incident to a recurrence of the carcinoma about two months after the original operation. Lexer concludes from this operation that the principle of the operation is correct. In another case he adopted the combined procedure using a loop of jejunum to replace the esophagus as high as the mammæ and above that making a skin tube. The result was a most gratifying one. The patient is able to swallow food although fluids must be taken at the same time in order to wash down large boluses of food. At first the patient complained of considerable itching in the skin portion of the esophagus but this soon subsided. Eight months have elapsed since the final operation and the patient is enjoying the best of health.

82. **Anesthesia of Brachial Plexus.**—Hirschel reports two cases in which he operated successfully on the elbow and ulna for the removal of fractured bones, and in a third case for tuberculous osteomyelitis, all under local anesthesia of the brachial plexus. The anesthetic was injected directly into the plexus.

85. **Arthritis Caused by Measles.**—A 6-months-old infant developed a typical attack of measles which ran the regular course and terminated in complete recovery. About five days afterward when no further effects of the measles were apparent, there developed a swelling and redness of the right large toe and dorsum of the foot. A similar condition developed

in the left foot and the right wrist and right elbow. All of the joints so involved were intensely painful, subjectively as well as objectively. The right hip and right knee next became slightly painful. The heart, lungs and other organs were apparently normal. There was very little elevation of temperature and inside of *twenty-four hours the pains began to* subside and the swelling became less. There was a slight leukocytosis and little poikylocytosis. When the patient was seen again, a week later, recovery was complete. Feibelmann believes that this was a typical rheumatoid condition caused by the measles. The case is interesting not only because of the arthritis following measles, but also because of the age of the patient.

87. **Acoustics of Heart Tones.**—Lillienstein calls attention to the fact that it is of the greatest importance to be able to differentiate valvular and pericardial adventitious sounds. This is hardly possible by means of the instruments and apparatus hitherto in use. Lillienstein has devised what he calls a cardiophone or a microphone stethoscope which makes accurate diagnosis possible. The heart tones are very easily appreciated by means of this instrument and any deficiency from the normal is quickly detected. Valvular tones may be differentiated from pericardial friction or other sounds, and the various sounds heard during respiration. both in well and diseased lungs, are easily heard. The instrument is easily portable. The illustration shows the method of construction of the apparatus.

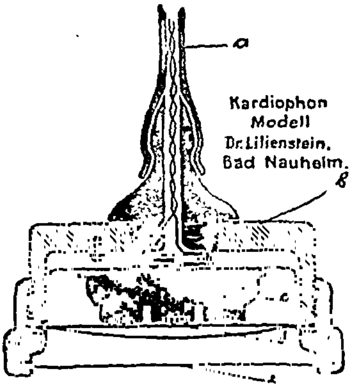

Figure showing Lillienstein's cardiophone; a, electric wiring; b. enclosed capsule; c. carbon; d, carbon membrane; e, hard rubber or celluloid membrane.

88. **Inversion of the Appendix Vermiformis.**—Langemak reports the case of a boy 4 years old who complained of pain in his right hip. Temperature was normal; there was no vomiting; no abdominal tenderness; no pain on pressure. Under the right Poupart's ligament an intra-abdominal mass was palpable, slightly tender on pressure and almost fixed. There was slight abdominal rigidity. Below Poupart's ligament was a fluctuating mass which was assumed to be an abscessed gland. In the meantime the temperature rose to 40.7 C.; pulse. 144. A diagnosis of epityphlitis was made. At the operation it was found that the appendix had become entirely inverted into the cecum. By means of gentle massage it was possible to reduce the invagination. Only fifteen similar cases have been reported in the literature.

89. **Skin Pigmentation in Addison's Disease.**—It is believed by Stümpke that the excessive pigmentation of the skin in Addison's disease is not the result of excessive pigment formation in the adrenals but that this occurs in the skin itself as the result of the action of the secretion of the adrenals which reaches the skin through the circulation.

Medizinische Klinik, Berlin

July 16, VII, No. 29, pp. 1109-1146

92 Surgery of the Teeth. (Die Zahnchirurgie und ihre Bedeutung für den praktischen Arzt.) A. N. Kneucker.
93 Statistics in Regard to Blindness from Ophthalmia Neonatorum in Germany. (Die Erblindungsgefahr infolge von Augenentzundung der Neugeborenen.) F. Best.
94 Arthrectomy for Gout. (Operative Heilung des Podagra.) F. Franke.
95 Sugar in the Diet in Heart Disease. (Zuckernahrung bei Herzkrankheiten.) A. Selig.
96 Non-Operative Treatment of Strabismus. (Ziele und Erfolge der unblutige Schielbehandlung.) P. Schultz-Zehden.
97 *Unsuspected Cancer as Cause of Hiccup. (Beitrag zum Kapitel "Singultus.") J. H. Greeff.

97. **Hiccup Due to Unsuspected Cancer.**—In Greeff's case the singultus persisted unmodified by all measures until the death of the patient, six months after the hiccup had first commenced to torment him. He was a man of 76, and the singultus developed a few weeks after recovery from pneumonia with pleurisy. The singultus recurred at intervals of only a few minutes, seldom more than a quarter of an hour, and there was occasionally a shrill intonation at the end of the hiccup showing the violence of the diaphragm spasm. Necropsy revealed a small tumor in the hilus of one lung, evidently a primary malignant growth, and probably responsible for the singultus by compression of the phrenic nerve directly or indirectly, although no positive evidence of this could be discovered.

Wiener klinische Wochenschrift, Vienna

July 20, XXIV, No. 29, pp. 1043-1078

98 Technic and Results of Photographing the Fundus of the Eye. (Photographie des Augenhintergrundes.) F. Dimmer.
99 Nature of Chorea Minor and the Chorea Psychoses. P. Jolly.
100 Allergy. (Zur Bewertung der Allergie.) Nourney.
101 Uterine Hemorrhage of Syphilitic Origin. J. v. Jaworski.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

A MANUAL OF PATHOLOGY AND MORBID ANATOMY. By T. Henry Green, M.D., F.R.C.P., Consulting Physician to Charing Cross Hospital, and to the Brompton Hospital for Consumption and Disease of the Chest. Eleventh Edition. Revised and Enlarged by W. Cecil Bosanquet, M.A., M.D., F.R.C.P., Assistant Physician (Late Pathologist) to Charing Cross Hospital and to the Brompton Hospital for Consumption and Diseases of the Chest. Cloth. Price, $4.50 net. Pp. 642, with 350 Illustrations. Philadelphia: Lea & Febiger, 1911.

A MANUAL OF PRACTICAL HYGIENE FOR STUDENTS, PHYSICIANS AND HEALTH OFFICERS. By Charles Harrington, M.D., Late Professor of Hygiene in the Medical School of Harvard University. Fourth Edition, Revised and Enlarged, by Mark Wyman Richardson, M.D., Secretary to the State Board of Health of Massachusetts. Cloth. Price, $4.50 net. Pp. 850, with 124 illustrations. Philadelphia: Lea & Febiger, 1911.

THE BELLEVUE HOSPITAL NOMENCLATURE OF DISEASES AND CONDITIONS WITH RULES FOR THE RECORDING AND FILING OF HISTORIES. Compiled by the Committee on Clinical Records Composed of Drs. Robert J. Carlisle, Warren Coleman, Thomas A. Smith and Edmund L. Dow, 49 W. Fifty-Seventh Street, New York. Revised and Made to Conform to the International Classification, 1911. Morocco. Pp. 327.

A MANUAL OF CLINICAL DIAGNOSIS BY MEANS OF LABORATORY METHODS. For Students, Hospital Physicians and Practitioners. By Charles E. Simon, B.A., M.D., Professor of Clinical Pathology and Experimental Medicine at the College of Physicians and Surgeons, Baltimore, Md. Seventh Edition. Cloth. Price, $5 net. Pp. 778, with 168 illustrations. Philadelphia: Lea & Febiger, 1911.

INDEX-CATALOGUE OF MEDICAL AND VETERINARY ZOOLOGY. Part 34. (Authors: Werlhof to Xemard.) By C. Wardell Stiles, Ph.D., Consulting Zoologist, Bureau of Animal Industry, and Albert Hassall, M.R.C.V.S., Assistant Zoologist, Bureau of Animal Industry. U. S. Dept. of Agriculture Bureau of Animal Industry, Bull. No. 39. 1911.

OPHTHALMIC MYOLOGY. A Systematic Treatise on the Ocular Muscles. By G. C. Savage, M.D., Professor of Ophthalmology (Defects of the Eye) in the Medical Department of Vanderbilt University. *Second Edition. Price,* $4. Pp. 685, with 84 illustrations. G. C. Savage, 137 Eighth Avenue, Nashville, Tenn., 1911.

IMMUNE SERUMS. A Concise Exposition of the Main Facts and Theories of Infection and Immunity. By Dr. Charles Frederick Bolduan, Bacteriologist, Research Laboratory, Dept. of Health, City of New York. Fourth Edition. Price, $1.50. Pp. 226. New York: John Wiley & Sons, 1911.

REPORT OF THE EIGHTIETH MEETING OF THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE. Sheffield: 1910. August 31-September 7. Cloth. Pp. 868. London: John Murray, Albemarle Street, 1911.

TRANSACTIONS OF THE FLORIDA MEDICAL ASSOCIATION FOR THE YEAR 1911. Held at Tallahassee, Fla., May 10, 11, 12, 1911. Paper. Pp. 177. Dr. J. D. Fernandez, Secretary, Jacksonville.

THIRTEENTH ANNUAL REPORT OF ST. FRANCIS' HOSPITAL, HARTFORD, CONN. Conducted by Sisters of St. Joseph. For the Year 1910. Paper. Pp. 67, with illustrations.

THE WUHU GENERAL HOSPITAL. Medical Report, 1910. Paper. Pp. 24. E. H. Hart, Surgeon, 7847 Winnecoma Avenue, Chicago.

REPORT OF THE VICE COMMISSION OF MINNEAPOLIS TO HIS HONOR, JAMES C. HAYNES, MAYOR. Paper. Pp. 134. 1911.

BIANNUAL REPORT OF THE HOFFMAN HOSPITAL, KEYSER, W. VA. Paper. Pp. 23, with illustrations. 1909-1910.

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SOME COMMENTS AND SUGGESTIONS CONCERNING THE WELFARE OF THE SECTION ON OPHTHALMOLOGY*

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FORT WAYNE, IND.

In assuming the position of Chairman of this Section, I desire to express my thanks for the honor that has been conferred on me, and to assure you of my keen appreciation of the compliment you have paid me in selecting me to preside over your deliberations.

To be Chairman of the Section on Ophthalmology is an honor of which one may be proud. The Section was the first one of the Association, having been organized in 1879 with less than 100 members. It has steadily grown in size and importance until it has at present over 1,200 members, who, according to the rule adopted by the Association office, are active members as a result of registration in the Section during the past five years; and if we include as members all those who hold membership in the Association and who have registered in the Section during the last ten years, the membership is over 1,700. This membership includes practically all of the prominent and progressive ophthalmologists of this country, and from the amount and character of work that has been done and is being done, the Section is entitled to rank as one of the foremost ophthalmologic societies of the world.

But the organization does not exist which is so good that it cannot be made better, and in keeping with the spirit of the Constitution and By-Laws of the Association, which prescribe the character of the Chairman's address, I shall briefly discuss some features connected with the conduct of the Section, and offer a few suggestions and some recommendations which, if adopted, in my judgment, will add to the future reputation and usefulness of the Section.

The plan of sending the printed papers to the active members of the Section in advance of the annual session at which such papers are to be presented and discussed has now been in operation six years and has proved an unqualified success. Not only has it led to the preparation of better papers, but it has given the members an opportunity to read carefully and to study thoroughly the matter to be presented by the various essayists, and has stimulated more and better discussion at the meetings. It has also given opportunity for the careful preparation of discussions in advance and eliminated in a large measure the rambling and ofttimes inapplicable discussion heard at meetings where the matter contained in papers is first presented when the authors read from their manuscripts. The belief among some that the discussion of papers that have been given to the members prior to the sessions would lead to discussions devoid of originality has not been borne out by the results, for never in the history of the Section have the discussions been as comprehensive and yet original as they have been since the adoption of the plan of distributing the papers in advance in the form of our presessional volume. In expressing a desire for a continuation of the plan, I wish to make a plea for an earlier publication of the presessional volume with a view to placing the papers in the hands of the members of the Section at least 30 days before the annual session at which the papers are to be presented. This is entirely possible if the manuscripts are in the Secretary's office not later than March 15, and any member who desires a place on the program can have his manuscript ready at the appointed time if he will start earlier with his work on it. Probably a majority of our essayists prepare papers under pressure, and are apt to procrastinate. To complete a paper a week or ten days earlier is not a matter of much concern, if it is known months in advance that the completed manuscript must be in the hands of the Secretary of the Section at a certain time.

I also desire to make a plea for more written discussions or discussions from well arranged notes on the part of those who take part in our meetings. Even the best of our members, though there are many who are concise and forceful speakers, are apt to be guilty occasionally of rambling, disconnected and irrelevant discussions if the same are given wholly extemporaneously. This has been forcibly illustrated by a comparison of the stenographer's report of extemporaneous discussions with the same after revision and extended alteration at the hands of those who gave the discussions.

The plan of appointing members to open the discussion of papers should be continued, but the appointments should be made earlier and acceptances received before the final program goes to press, and each member accepting such an appointment should consider that he is as much under obligation as the essayist and his formal discussion should be prepared with such thoroughness and comprehensiveness as the subject demands.

Notwithstanding the action of the Executive Committee concerning the rule to be followed by the officers in arranging the program for this session, I desire to express my emphatic objection to a lengthy program necessitating long hours and an added meeting on Friday morning. I know that I voice the sentiment of a large number of the prominent and active members of this Section when I say that the best interests of the Section are subserved by having a few papers well and thoroughly discussed and within such time that the members are not completely tired out or unnecessarily bored before the session closes. To continue some of our morning meetings until 12:30, and some of our afternoon meetings until 5:30 or 6 o'clock, and even then crowd out much discussion in order to complete a long program, is not conducive to the best efforts and results, and it tires the members too much, to say nothing of the officers who are in duty bound to remain until the adjournment. If the morning meeting is called at 9 o'clock, or better still at 9:30, and adjourns not later than 12, and the afternoon meeting is called promptly at 2, and adjourns at 4:30 or not later than 5, the members will have had all they can stand in the way of a scientific treat, provided the program is followed as closely as it is by the more active and interested members. Not more than five good papers can be presented and properly and thoroughly discussed within the time allowed for one meeting, and five meetings, ending with the afternoon meeting of Thursday, are sufficient to satisfy fully 90 per cent. of the members.

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* Chairman's Address before the Section on Ophthalmology at the Sixty-Second Annual Session of the American Medical Association, held at Los Angeles, June, 1911.

No paper on the program should be presented out of its order, as it is unfair to the other essayists and to the members of this and other sections generally to have the order on the official program changed, with its possible disappointment to many who have arranged attendance in order to hear certain papers. Furthermore, we should follow the very stringent rule adopted by the Section several years ago, to the effect that any member who accepts a place on the program and defaults shall not be privileged to present a paper before the Section for a period of three years, except at the discretion of the officers and Executive Committee in accepting an excuse. It is already the rule that a paper on the program not actually presented and defended by the essayist shall not be published in the transactions of the Section except by unanimous vote of the Section, and I wish to make the recommendation that we eliminate that portion of the rule which provides for any publication of the paper on the recommendation of the Section until after the paper has been actually presented before the Section. In my judgment it establishes a bad precedent to refer papers by title for publication in either the Transactions of the Section or The Journal of the American Medical Association.

If, through absence of any of the essayists, or as a result of limited discussion of papers, the program of any meeting is shortened, a subject, previously selected by the officers for such a contingency, may be offered for discussion. Undoubtedly such a feature would prove an interesting and profitable innovation. For instance, if at this meeting the program should be completed at too early an hour for adjournment, we might discuss the subject of the effect of salvarsan, or what is popularly known as "606," on the eye. Comparatively little on the subject has been written in this country, and you will note that our program has no reference to it. Other equally practical subjects might be suggested for a kind of "round table" discussion, and such a feature, it seems to me would prove very acceptable. I am told that the British Medical Association regularly gives up a part of the time of the regular program to such a feature and that it has proved a decided success.

Another portion of the surplus time, if there should be any, could be given to that part of our program which of late years has been set aside for demonstrations or the presentation of new instruments or appliances. This feature, it seems to me, could profitably take more time than we have heretofore been accustomed to give it.

Therefore, in consideration of the propriety of having fewer papers, of giving opportunity for more and better discussions, and of affording an opportunity for the introduction of other features, I desire to make the following specific recommendations: First, that the Section adopt a rule to the effect that the entire program shall not consist of more than twenty-five papers, exclusive of addresses; second, that at the discretion of the officers, and with the approval of the Section, for any unfilled number on the regular program there may be substituted a general discussion on some subject selected by the officers or proposed by some member of the Section; third, that the presentation and discussion of papers shall end with the meeting of Thursday afternoon; fourth, that if the officers and Executive Committee arrange any program for Friday the same shall be in the nature of clinical or social features; and, fifth, that no paper shall be approved for publication in the Transactions of the Section or in The Journal of the American Medical Association unless such paper has been actually presented by the essayist before the Section.

This leads me to a discussion of the merits of papers which should be accepted for the program. In such a large Section it is natural to suppose that a large number of papers will be offered for each annual program, and such is the case. For each of two eastern sessions within recent years over 140 papers were offered. The selection of a program from this large number of papers is a task for the officers and Executive Committee, and one that is not always devoid of embarrassment, owing to the difficulty of making selections from an abundance of good material. However, in the selection of papers for the programs of this Section, the utmost fairness has prevailed, and as Secretary of this Section for a period of seven years and being familiar with the action of officers and executive committees during that time, I am free to say that on every occasion an effort has been put forth not only to select papers of originality and unquestioned merit for each program, but to exhibit fairness in the distribution of favors by selecting papers with due regard to geographic location of essayists as well as age of the members. While it has been the unwritten rule, which should be continued, that mediocre maiden efforts should find no place on our programs, the young men who have in one way or another demonstrated their ability have been encouraged to offer contributions, and have met with the most cordial treatment at the hands of executive committees. Let us not forget that the ophthalmology of the future will be written by the young men of to-day, and that many of these men, because of the superior advantages and training they have in this day and the facilities that are offered for original work, are developing new truths which it should be to our pleasure as well as to our profit to hear or see demonstrated. The older and more noted men in ophthalmology do not possess all the knowledge pertaining to our specialty, and for that reason I am in favor of giving the young man of training, if not experience, a chance to be heard.

Our programs should be practical as well as scientific, and to that end demonstrations and the exhibition of charts, photographs, specimens and new instruments and appliances, should be encouraged. Whenever the Association meets where it is possible, the giving of clinics, both medical and operative, serve a useful purpose for the presentation of rare and interesting cases or the demonstration of new forms of operation or treatment. Such a feature could with propriety form the only program for Friday. This was the plan pursued at St. Louis last year, and it proved a great success, and it was an attractive feature which many members have expressed a desire to have repeated.

A criticism that I would offer concerning the work of the Section is the lack of purely original work. Too often our programs are made up entirely of papers that are simply a review of the literature on various subjects or represent the authors' clinical experiences, or perhaps simply represent the report of what are considered interesting and rare cases. I do not wish to belittle the value of reports concerning clinical findings with appropriate deductions, for I feel that the clinical side of our work ought to receive a good share of attention, but the matter of pure investigation certainly does not receive the consideration that it deserves, and it was a recognition of this fact that in a large measure led to the establishment of the Knapp Testimonial Fund and the offering of a medal for original research work.

In this connection I wish to endorse heartily the recommendations of one of my distinguished predecessors, Dr. W. H. Wilder of Chicago, to secure collective investigation by the appointment of committees to study definite subjects of scientific and practical interest to us as ophthalmologists, and I wish to urge the committees appointed as a result of the recommendation, to continue their investigations and to make reports before this Section at stated intervals.

The recommendation of another former Chairman, Dr. A. A. Hubbell of Buffalo, that the Section consider the subject of the proper qualifications of the ophthalmologist and endeavor to secure a recognized standard for the practice of ophthalmology as a specialty, it seems to me, is worthy of more consideration than was given it at the time the recommendation was made. Concerning this subject I am in hearty accord with Dr. Hubbell when he says:

> It is unfortunate, however, that no qualifications for practice have heretofore been required of the ophthalmologist other than those of the general practitioner, but his sense of justice, his pride and his taste for the subject have stimulated him, in a large proportion of cases, to prepare himself creditably for his work. The absence of these and the presence of a dominant spirit of commercialism, have, on the other hand, caused him to make too much haste to begin his practice, limiting his study to an undergraduate course, with perhaps a few weeks in postgraduate work. He neglects taking the necessary time for study, disregards important subjects, fails to acquire personal clinical experience—in short, he is an unprepared, unqualified specialist—an ophthalmolgist only in part. Ophthalmologists are rapidly increasing in number, and the unqualified ones are also becoming correspondingly too numerous. The ophthalmologist, of course, like other specialists, should possess knowledge of his subject much more extended and complete than that of the general practitioner, and by wider observation and larger experience he should be far more proficient and skilful. Indeed, he should be an expert in this department of medicine. When, therefore, one lacks the necessary qualifications for such a position, he should not be allowed to assume it, both because of the harm he may do to patients and because of the injustice he inflicts on the rights of his neighbor ophthalmologist, who has qualified at much sacrifice of time, energy and money.
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> In order that protection may be secured against unqualified ophthalmologists, I suggest that the course and subjects of study which the ophthalmologist shall pursue be regulated by law, and that a special board of examiners shall be appointed to act alone, or in association with general boards as now constituted, to determine his fitness, and, if found qualified, to authorize a license to practice to be issued to him.

In an able paper by Dr. Edward Jackson of Denver to be presented before this Section at this session, the subject of the proper qualifications of the ophthalmologist is discussed in the closing paragraphs from which I abstract the following:

> As matters stand now, the graduate, after a scanty introduction to ophthalmology in the medical school, is permitted to pick up ophthalmic knowledge and skill here and there: from desultory reading, by study of chance cases, in the unsystematized clinics of postgraduate schools, from the courses of self-constituted teachers, and by a partial return to the apprentice system through assistantship in the eye clinic or private office.
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> This has made ophthalmologists of apt students, sufficiently conscientious to persist in the effort to obtain knowledge under difficulties. But it has also created a large number of fakers within the profession—men who pose as specialists before colleagues slightly less informed than themselves, and before the still more ignorant public. This system, which is a lack of system, has not met the legitimate needs of the profession, or the best requirements of the public. The feeling that, although a physician's license to practice gives the privilege of ophthalmic practice, it does not guarantee any fitness for such practice, has led the public to be ready to look for ophthalmic advice outside the profession as well as in it.
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> The establishment of the degree of doctor of ophthalmology, and of the course leading to that degree, in the University of Oxford points to a practical way of meeting the need of the profession and the public for some authentic evidence of fitness to practice ophthalmology. The offering of such a degree, based on requirements of graduation in medicine and evidence of special acquaintance with ophthalmic science and art, by a few of our better American universities would sweep away the false conditions, the lie in medical education, out of which the optometry question has grown. There can be no better time than to-day, and no better place than the Section on Ophthalmology of the American Medical Association, for starting a demand on the part of the medical profession for the adequate teaching of ophthalmology in all well-equipped, efficient schools of medicine.

My apology for appropriating from the presessional volume these remarks of Dr. Jackson, is that the presentation of the subject in the manner indicated is entirely in accord with the views I had in mind in entering on a discussion of the subject, and I desire to take this occasion not only to endorse all that Dr. Jackson says but to suggest that this Section should recommend some standard of qualifications which shall be recognized as entitling a physician to the title of ophthalmologist.

The question of having a noted foreigner as a guest of honor of the Section is one that has met with varying degrees of approval from active members of this Section. We have been favored by having as our guests, and hearing addresses from, such distinguished men as Haab, Hirschberg, Ramsey, Hess, Collins and Parsons. They have added to the richness of our literature, and their presence has been an inspiration as well as a social feature which has given pleasure and profit to those who were fortunate enough to hear and see them. The advisability of having a guest of honor every session may be questioned, as also the effort to secure a guest for any particular session at the expense of numerous invitations which bring regrets. At the request of the Chairman, and with the approval of the Executive Committee, an invitation in the name of the Section was extended consecutively in one year to four noted ophthalmologists in Europe, only to bring regrets in each instance. The following year I heard it intimated by some of our European confrères that an invitation to be the guest of the Section on Ophthalmology was not difficult to obtain, inasmuch as invitations were distributed freely. To be the guest of this Section, representing practically all of the prominent and progressive ophthalmologists of the United States, and to receive honorary membership in the American Medical Association as one of the rewards, should not be an honor to be looked on lightly, and our invitations should not be so numerous or extended so promiscuously as to encourage the belief that the honor is a common one. Our efforts should not be to secure a guest at any cost, but to secure a guest who is entitled, through his standing as an ophthalmologist, to distinctive honor by the American ophthalmologists, and who in turn will, by his presence and the part he takes in our proceedings, stamp his visit as an event of scientific and social importance in the history of the Section. Furthermore, an invitation to be the guest of this Section should not be extended unless we are reasonably certain that the one who is to be invited will accept the invitation with the intention of fulfilling the obligation. The expense of entertainment of the guest while attending the session of the A. M. A. should be met by the Section and not by the officers and a few prominent members who are always ready to contribute in order to show our guests proper hospitality. Once in two or three years is often enough for us to have a guest of the Section as a feature of any session.

The Knapp Testimonial Fund, proposed and inaugurated by my immediate predecessor, Dr. W. C. Posey of Philadelphia, and myself, is a feature which it seems to me is pregnant with great possibilities in advancing the welfare of the Section. At the St. Louis session the purposes of the fund and the plans for its use were outlined and the same were approved unanimously by the Section. As is now well known, the fund is raised by voluntary pledges of varying sums from those members of the Section who are sufficiently interested to contribute a definite amount each year. Quite a large number of the members have become contributors on the understanding that they are to give a definite sum each year, but I regret to say that all those who ought to contribute to the fund have not done so, though probably this is due to an oversight rather than a lack of desire to aid an exceptionally worthy cause. I desire to urge every member of the Section to give something, even though it is no more than one dollar per year, and the fund will not grow too large for the purposes under consideration. In fact, I am distinctly in favor of efforts to secure, if possible, sufficient funds to established a principal, the income from which will be enough to enable us to carry out the plans already adopted.

The Knapp medal of the Section on Ophthalmology.

It was proposed that the Knapp fund should be maintained and used essentially for the purpose of stimulating research work and encouraging the highest type of scientific contributions in the field of ophthalmology. To this end it was decided to procure a medal, to be known as the Knapp Medal of the Section on Ophthalmology, and offer the same to invited as well as uninvited contributors to the Section on Ophthalmology for original work in ophthalmology, or for some contribution of such a highly meritorious character in the field of ophthalmology as will warrant the granting of a medal as a special recognition. It was also proposed to use a portion of the fund for the granting of a money prize to be used in carrying on any original investigations at the instance of the Section. It was further proposed that a portion of the fund should be used to meet the expenses of the Scientific Exhibit and various practical demonstrations. Provision was also made for minor expenses not already provided for by the Association in promoting the welfare of the Section.

The plan as outlined was approved by the Section, and the officers and Executive Committee were made a committee to carry out the purposes as outlined. In conformity with the action of the Section, I have the pleasure of exhibiting a design for a medal to be known as the Knapp Medal of the Section on Ophthalmology, to be offered annually for purely original work in ophthalmology, which shall be presented before this Section and be deemed by a committee, appointed for the purpose, worthy of special recognition. It is proposed that the medal shall be made of gold, and that on the reverse side shall be engraved the name of the recipient of the medal, the date when the medal was presented, and for what it was granted. It is also proposed that but one such medal be offered, that one contribution only shall receive a medal in any given year, and that the medal be not granted in any year unless the contribution offered in competition for the medal shall be of such a distinctly meritorious character as to meet with the approbation of the committee appointed to pass on the merits of such contribution. It is also proposed that the sum of $100 be set aside annually to be used, on the recommendation of the Section and at the discretion of the committee, to further research work carried on by order of or under the direction of the Section, but that no second appropriation be made until the first one shall have been exhausted.

In furthering the purposes as outlined, I desire to recommend that the Secretary of the Section, when sending out his annual announcements, shall include a printed circular calling attention to the medal and prize, and the conditions under which they are bestowed.

Since our last session death has removed from our ranks a large number of prominent members, among whom I may mention: Drs. A. W. Calhoun of Atlanta, A. R. Baker of Cleveland, and Leartus Connor of Detroit, all ex-chairmen of the Section. Others who were prominent and active members of the Section and who have died within the past year are: Drs. Charles Stedman Bull of New York, Henry Gradle of Chicago, Charles A. Oliver of Philadelphia, C. J. Kipp of Newark, N. J., and Herman Knapp of New York. To each and all of these deceased members the Section owes much of its success, for they labored to bring the Section to its present standing as the foremost ophthalmologic organization in this country.

In preparing the program for this year the officers of the Section have met with some disappointment in having withdrawals at the last minute and a few of the essayists whose papers appear in the presessional volume have, in consequence of sickness or other equally valid excuse, been prevented from being present. There are, however, enough papers to engage our attention for the time at our disposal, and I am satisfied that the discussion will prove interesting and profitable to all. It is with pleasure that I welcome you, old members as well as new, in this garden city of the Pacific Coast where the most cordial and generous hospitality has been extended to us, and I bid you take up the Section work that is before you with an earnestness and thoughtfulness which presages a profitable and pleasant session.

219 West Wayne Street.

AN EPIDEMIC OF CHANCRES OF THE LIP FROM KISSING

JAY F. SCHAMBERG, M.D.
PHILADELPHIA

The following epidemic is a distressing instance of the innocent transmission of syphilis.

A coterie of young men and women, varying in age from 16 to 22 years, gave a minstrel performance as a benefit. Following this, a party, and later a banquet, were given at which juvenile kissing games were indulged in. One of the participants, a young man of 22, had a sore on his lip, the nature of which he avers he did not know. Six young women kissed by him developed chancres of the lip. A young man present at the affair likewise developed a chancre of the lip apparently from the virus deposited on the lips of one of the young women, for he did not come into contact with the original source. In addition, a young woman kissed by the offender at a third social function likewise developed an initial sclerosis, making in all eight labial chancres from the one source.

The matter was called to the attention of the Department of Health of Philadelphia by a physician under whose care three of the patients came. Dr. Joseph Neff, the director of the department, asked me to investigate the outbreak. Further study brought to light knowledge of the remaining cases.

The original offender was apprehended by a detective and brought to the health department quarters in City Hall. I examined the young man and secured the following history: The patient first noticed a sore on the left side of the lower lip about Feb. 12, 1911; March 3, he consulted a physician who, according to the statement of the patient, did not inform him of the contagious nature of the lesion. The physician on being interrogated declares that he advised the young man to take all precautions; there is, therefore, a question of veracity between the patient and his physician.

March 4, the patient attended an evening party at which kissing games were played and at which most of the young women were infected. March 18, he attended a banquet, after which similar osculatory games were indulged in.

At the time of my examination, about June 20, he presented the remains of a chancre of the lower lip, pronounced tonsillar ulceration with mucous patches, and a maculopapular eruption over the trunk.

There is no law in this state specifically giving the right to the health authorities to deprive a syphilitic of his liberty during his period of infectivity, but there is an old law of almost a century ago empowering the board of health to quarantine a person who is known to be spreading a contagious disease. This patient had so carelessly spread a serious disease that the authorities felt called on to prevent further infection. With the patient's consent he was taken to the municipal hospital and an intravenous injection of salvarsan given. Had the patient refused, he would have been quarantined.

The data concerning the unfortunate patients who innocently contracted syphilis are as follows:

Case 1.—A young woman, aged 20, developed a sore on her lip in the early part of April and on the fifteenth of that month consulted a physician, who found an indurated lesion both on the upper and lower lip and marked adenopathy. The nature of the lesion was recognized by the physician and the patient was immediately placed on treatment. She later developed tonsillar ulceration, mucous patches and some eruption on the trunk. When I examined her later, she had tonsillar ulceration and the remains of the labial chancre. July 8 the Wassermann was strongly positive. She was given an intravenous injection of salvarsan.

Case 2.—A young woman, aged 18, was examined by me June 24. The site of infection, which was on the right side of the upper lip, still showed some activity of the process. There was a circular, deep-red lesion about 1.5 cm. in diameter, with convexly elevated borders and a cicatricial depressed center. A slight induration was still present. Both of the submaxillary glands were enlarged, but the intumescence was greater on the right side. This patient was kissed several times by the offender March 18. On account of the appearance of his lip she permitted the liberty with reluctance and wiped her own lip afterward with a handkerchief. July 8 a Wassermann reaction was strongly positive. The patient was given an intravenous injection of salvarsan.

Case 3.—A young woman, aged 19, states that she developed a "sore" towards the end of April on her lower lip where she had had a fissure. The lesion was about twice the size of a pea. The maxillary glands and glands of the neck were enlarged. She consulted her physician and was placed on mercurial inunctions. When I examined her July 1 there was a split-pea-sized deep-red discoloration at the site of the chancre on the lower lip. A Wassermann reaction was strongly positive. She was given an intravenous injection of salvarsan.

Case 4.—A young woman, aged 16, first noticed a sore on her lip about April 13 and visited her physician one week later. She had a lesion on the left side of the lower lip which was diagnosed by the attending physician as a chancre. There was an enlargement of the submaxillary glands. She was placed on mercurial treatment. When I examined her but little of the lesion could be observed. A Wassermann reaction was strongly positive. She was given an intravenous injection of salvarsan.

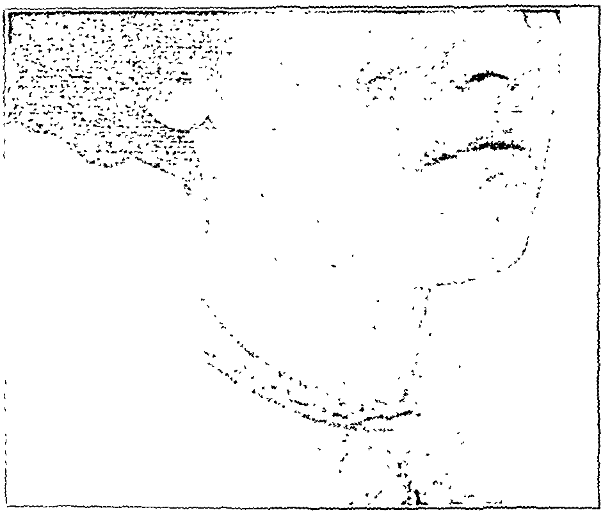
Case 5.—A young woman, aged 18, stated that her lip was noticeably sore about March 25. The lesion was situated on the right side of the lower lip and was never larger than a pea. It was crusted on the external half and covered with a whitish pellicle on the moist part of the lip. The lesion was properly diagnosed by her physician and the patient placed on mercurial treatment. When I examined her June 28 the site of the chancre was deep-red, shining and slightly elevated. The submaxillary glands were still somewhat enlarged.

Case 6.—A young man, aged 20, was present at the party and took part in the kissing games. In the early part of April he noticed a hard sore on the center of the upper lip. He states that he had the habit of biting his lip. His physician diagnosed chancre and placed him on mercury internally and sodium cacodylate hypodermically. When I examined him June 27 he exhibited the remains of the chancre on his upper lip. The lesion was convexly elevated, about the diameter of a cherry, and of a shining deep-red color. On the mucous aspect of the lip was a whitish pellicle. The maxillary and submaxillary glands on both sides were markedly enlarged. The patient stated that he had had a rash on the chest, but that this had disappeared. There was swelling and ulceration of the tonsils with mucous patches present. Spirochetes were found in the lip lesion and a Wassermann reaction was positive. An intravenous injection of salvarsan was given.

Case 7.—A young woman, aged 18, was not at the party referred to, but was kissed later by the same osculatory young man. Her physician informs me that she consulted him for a chancre of the lip which healed through the use of the biniodid of mercury.

Case 8.—A young woman, aged 18, was also infected. My knowledge of this patient is merely from hearsay, as I have not been able to see her. I am told by those who saw her that she had a very conspicuous sore on the lip in the early part of April. She stated that her physician "burned it out." She was at the party and was kissed several times by the young man with the labial chancre.

Five or six other young women at the several social functions were kissed by the young man with the labial chancre, without contracting syphilis. Of those who developed chancres, four had no knowledge of any abrasion on the lips prior to infection, one had a fissured lip, and one was in the habit of biting his lips. Of the seven chancres examined by me, four were on the lower lip, two on the upper, and in one case both lips were involved. In the case of the young man who contracted a chancre, there is reason to believe that he acquired the infection from virus deposited on the lips of one of the young women by the original disseminator. The source of the chancre of the lip in the original patient could not be definitely determined, but, inasmuch as the young man was given to frequent and promiscuous kissing, it is presumed that the disease was contracted in this manner.



Chancre of the cheek of several months' duration, presumably contracted indirectly from one of the young women with chancre of the lip.

Case 9.—Since writing the above I have been consulted by a 20-year-old young woman employed in the same establishment and brought into close contact with two of the patients with chancre of the lip, who presents a well-defined chancre on the right cheek below the malar bone. This first developed in April after the appearance of the labial sores in her associates. At the present time (July, 1911) there is a deep-red, firm, elevated placque about 1½ c.m. in diameter, with a slightly depressed cicatrical center. The submaxillary glands are enlarged. The patient and her physician state that she had some eruption on the trunk which disappeared under the administration of mercury. This patient handled telephone trunk cords which were used by the patient described in Case I. She states that she scratched a "pimple" on her cheek and the present lesion developed at the site. She was not kissed by the two young women with chancres of the lips, and had never come in contact with and, indeed, did not know the young man who was the source of the extragenital epidemic. The exact manner in which the infection was carried to this patient cannot be affirmed but it is reasonable to believe that it was derived from one of the young women with a lip chancre.

This most unfortunate epidemic should teach a lesson which cannot too strongly be impressed on the public, i. e., the danger of promiscuous kissing, either between those of the opposite or the same sex. This should be taught as a matter of every-day hygiene. In the second place, physicians must recognize that a tremendous responsibility rests on them in safeguarding the public from luetic patients under their care. Too often the instructions given to patients suffering from syphilis are perfunctory and unimpressive, if not omitted altogether. This epidemic likewise emphasizes the intense infectivity of extragenitally located chancres swarming, as they do, with spirochetes.

1322 Spruce Street.

LINGUAL, SUBLINGUAL AND OTHER FORMS OF ABERRANT THYROIDS *

CHARLES H. MAYO, M.D.
ROCHESTER, MINN.

The common expression that "Man is as old as his blood-vessels" is no longer tenable. We now know that his growth and his manifest age depend more on the glands of the body which control function and metabolism, as well as the vessels themselves.

Inasmuch as the importance of the duct and the ductless glands is now known to us, we see why there should be, proportionately, so few anomalies among them in comparison with those in less important structures of the body.

It is becoming more and more apparent that of the various ductless glands the thyroid is one of the most important in its control of the body metabolism, as well as in the maintenance and stimulation of function in many of the associated glands. While various diseases or changes in its structure are fairly common, marked anomalies are exceedingly rare.

The first consideration in the study of the anomalies of this gland is the observation of development of the structure from the earliest embryonic stage. Usually the thyroid is considered as being developed from three anlage: the superior from the pharynx or mouth area is developed with the tongue which is in three portions: the anterior three-fifths, all in front of the circumvallate papilla, in fact, is formed from a median single body. The posterior two-fifths of the tongue is formed in halves, and at the center of union of these three portions, a tubular depression is developed with the bilobed thyroid anlage at its base, from which tissue the greater part of the gland is formed. As stated by most embryologists, this structure descends to unite at the seventh week with the lower anlage, one on either side, which has developed in the fourth branchial furrow. The hyoid bone is apparently developed at about the fifth week, and crosses the line of the descending thyroid.

The hyoid in its development entangles 40 odd per cent. of thyroids in their descent, causing a stringing out of the thyroid tissue to a variable degree. This portion, when present, is commonly known as the parimedial lobe and connects with the isthmus or the left upper pole.

The tube which developed as a consequence of the descent of the thyroid is known as the "thyroglossal

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* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

duct." It is lined with a temporary pharyngeal epithelium, and apparently is a phylogenetic remnant of the excretory duct of the thyroid which still persists in certain of the invertebrate animals; for example, the sea scorpion, the limulus or king crab, etc., in which, the thyroid being a true sex gland, the duct empties into the uterus or the genital tract (Gaskill). This duct is not lined with thyroid epithelium in man, but with fetal pharyngeal mucosa which undergoes obliteration more or less completely, the remains of its upper extremity being marked by the depression or opening at the back of the tongue, known as the "foramen cecum." In anomalies in which there is a failure of obliteration of this duct, or in which portions of true pharyngeal mucosa are carried down by it, are found the midline cysts of the upper cervical region. These are not true branchial cysts, but thyroglossal duct cysts filled with mucoid material. Being remnants of the embryologic development, they retain power of generation and growth when operated on unless every vestige of the structure is removed. In several cases we have seen such cysts open through a delicate foramen in the center of the hyoid bone where it had been grapsed by the developing hyoid.

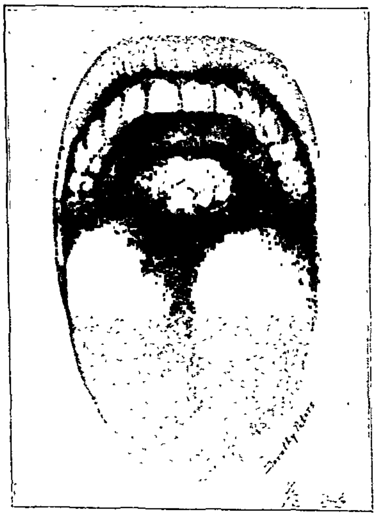
Fig. 1.—Lingual thyroid.

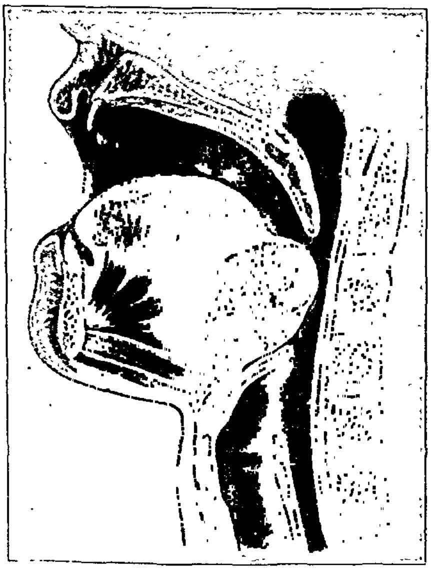
Fig. 2.—Lingual thyroid seen in cross section.

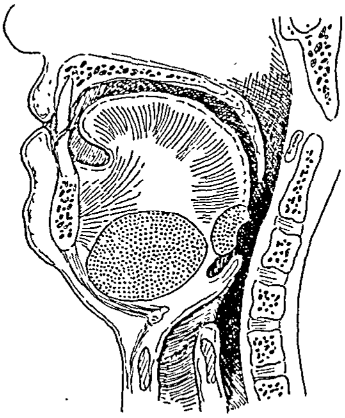
Fig. 3.—Lingual and sublingual thyroids. (From Priestly Leech, *The Medical Annual*, 1906.)

It may be seen readily then, that a delayed descent of the thyroid from its lingual position, or an early formation of the hyoid, might force the development of this portion of the thyroid into the lingual or the sublingual area.

His, and other embryologists, formerly believed that the lower poles of the thyroid were developed in the fourth branchial grooves, but in His' later work he is more doubtful concerning this point and is inclined to believe, with some others, that there is a possibility of these lower centers developing tissue which later disappears, but which resembles the so-called suprapericardial bodies of the vertebrates. However, if it is true that these bodies are thyroids, it would explain some of the anomalies of the lower portion of the gland; for example, aberrant or accessory thyroids beneath the sternum or within the upper chest. Such tissue might occasionally be dragged to this position by the thymus gland, which forms one notch higher, namely, in the third furrows, and descends to a point behind the sternum.

Thyroid tissue completely separate from the rest of the gland is usually described as aberrant, while if it is at all connected with the main thyroid it is called an accessory thyroid. The anomalies of the lower portion of the gland are fairly common, being seen probably once in fifty thyroid operations for simple goiter. Aberrant thyroids, found laterally, we have observed with much less frequency. Small accessory and aberrant thyroids between the hyoid and isthmus of the thyroid are relatively common.

I have seen but three lingual thyroids; one in a boy of 18 years, in whom the growth had been present for six years; one in a woman of 46, which had been noticed for several years, and one in a woman of 63, which had been present about two years (Figs. 1 and 2). The latter case presented both types of lingual and sublingual; the superior upper portion was the size of a large walnut, while the inferior lingual tumor was nearly as large.

In corroboration of the views of those embryologists who believe that the bulk, if not all, of the thyroid has developed from the pharyngeal anlage, it is of interest to note that in approximately one in seven of the cases, patients operated on for lingual thyroid develop myxedema. It is probable that some cases were reported too early after operation to give any accurate information in regard to this point, and that in others only the cystic portion was enucleated, leaving a part of active thyroid.

I believe that a careful examination of the thyroid region should be made before operation in order that a less extensive removal of tissue will be made if there is no palpable thyroid, treating the tumor by shelling out the cyst interior rather than by the more radical removal of all the tissue.

It is very probable that stray portions of the thyroid are of frequent occurrence and are not recognized since there may be no pathologic change occurring in the aberrant portion to make its presence known by tumor formation.

In the diagnosis, the suprahyoid or the midline tumors must be differentiated from malignant disease of the glands of undiscoverable primary origin, from thyroglossal duct cysts, from dermoids, ranula, lingual tonsils, etc. In some instances this will be determined only by operation.

Free hemorrhage has been noted as a symptom in some of the reported cases. The thyroids in the tongue, as seen in the supralingual, are usually rounded tumors covered with thin mucosa with numerous veins coursing over the surface. Their prominence is between the epiglottis and the foramen cecum (Fig. 3). The slowness of the growth, in consideration of the richness of the blood-supply in this area, usually eliminates malignancy. Angiomas are differentiated by being more spongy, more irregular in outline, of purple color and usually showing venous extension to one of the lateral pharyngeal areas.

When tumors are found in the lingual and the sublingual positions in the same patient they may be removed, if preferred, in two stages, first, from a hyoid transverse incision with separation of the muscles, similar to ordinary goiter operations (this operation leaves less scar than the vertical); later, enucleation of the upper portion from the tongue, as was done in our third case.

In the enucleation of lingual thyroids the tongue and pharyngeal areas are cocainized, the patient anesthetized with ether and a rapid operation made while the tongue is held in extreme tension. The free hemorrhage is controlled by deep sutures. In very extensive superior lingual goiter it may be advisable occasionally to ligate the lingual arteries and make a laryngotomy as a preliminary procedure. It will rarely be necessary to divide and separate the lower jaw.

While the operations for the removal of lingual thyroids through the mouth have been quite bloody, they have been successful; practically no fatalities have been reported. Although there have been approximately but fifty cases recorded, undoubtedly there have been many others in which patients have been operated on.

CASE 1.—A woman, aged 46, came for examination in 1893. There was a tumor on the dorsal posterior surface of the tongue. An operation was performed under local and general anesthesia A blunt dissection was made and the cystic colloid thyroid was removed. Recovery followed.

CASE 2.—J. D., male, aged 18, was admitted to the hospital, June 1, 1896. An examination showed a blood-tumor at the base of the tongue of about six years' standing. The patient spoke with difficulty. The diagnosis was: A tumor on the posterior part of the tongue next to the epiglottis. The operation consisted in making a temporary division of the jaw at the symphysis of the tongue and in excising the growth. Recovery followed. Pathologic report was "adenosarcoma."

CASE 3.—Mrs. J. W. H., aged 63, on examination Nov. 15 1910, was found to have a growth at the base of the tongue, which had been first noticed as a small lump eighteen months before. Two months previously the growth had become noticeable and troublesome, because of a feeling of fulness. There was no pain, but there were headaches after any exertion. A tumor was found in the posterior one-third of the dorsum of the tongue, the size of a hen's egg. There was a subcutaneous tumor (slightly smaller) under the chin. The diagnosis was of lingual thyroid.

Nov. 21, 1910, the operation, consisting of the enucleation of the lingual thyroid from the submental region, was performed, and two weeks later the superior lingual tumor was removed through the mouth. Recovery followed. Pathologic report was "aberrant thyroid with bone deposit."

Unclean Operators.—Each pitiful, infected, suppurated, fever-burned, doctor-poisoned victim, remarks Dawbarn in the *Medical Record*, like a gaunt specter, brings back to our thoughts with hideous clearness what surgery was before the surgeon knew better. He knows better now. To-day the man who operates unclean of person or appliance is unclean of soul.

THE TREATMENT OF LATERAL CURVATURE OF THE SPINE

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AND
JAMES WARREN SEVER, M.D.
BOSTON

For many years the treatment of lateral curvature has been considered a muscular problem to be met by muscular therapeutics, that is, by gymnastics. Although this treatment has been on the whole successful when properly carried out in the functional and milder structural types of the affection, it has been on the whole distinctly unsuccessful in the treatment of the moderate and severe types of scoliosis. The reason for this is that the treatment of the severer types of the affection is a bone and not a muscle problem, and must be carried out by means of sound surgical principles addressed to the reshaping of distorted bone. The treatment to be advocated in the present paper is based on these principles, and the results of the treatment are shown as carried out for three years in the lateral curvature clinic of the Children's Hospital, Boston.

There are two varieties of lateral curvature, (1) the postural or functional, and (2) the organic or structural. The first variety can be quickly discussed and laid aside, for it is the second variety which constitutes our real problem.

FUNCTIONAL OR POSTURAL LATERAL CURVATURE

The former is really nothing but a faulty attitude, and the latter would be a better name for it. The child, who is generally from 5 to 15 years old, stands with a slight or very moderate lateral curve of the whole spine, in most instances to the left. The left shoulder is higher than the other, and the trunk is displaced to the left, uncovering the right iliac crest and making it more prominent than the left. There is no marked rotation or twisting of the curved region, but when the child bends forward from the hips and the trunk becomes horizontal, the right side of the back of the thorax can be seen to be very slightly higher than the left. The curve disappears when the patient lies down.

The condition is often associated with round shoulders and round back, and where statistics have been taken regarding it, it has been found to occur in from 20 to 25 per cent. of children of school age. The curve is always single, and compensatory curves do not exist. It is sometimes described as total scoliosis, which should be interpreted as being synonymous with functional or postural scoliosis.

Two mistakes are frequently made in dealing with this condition. In the first place, the curve is so slight that it is frequently overlooked, and second, if it is recognized, the parents are frequently told that the child will outgrow it. There is no reason for overlooking the existence of any postural curve, because it is perfectly simple to hang a plumb-line in the cleft of the buttocks and see if the spinous processes form a straight line and come under that plumb-line. If they deviate in a gradual curve, total scoliosis exists.

With regard to the second point, so far as observations go, there is no tendency to the spontaneous outgrowth of the condition. It is extremely common in adults, and the tendency of growth is entirely toward an increase of the deformity rather than toward a straightening of the spine. Such cases frequently change to the structural type in the process of growth, double curves forming out of single ones; but such cases do not as a rule change to the severe type of structural curve, so that having recognized the existence of a postural lateral curve, the parents should be told that it will probably increase somewhat, will undoubtedly persist into adult life unless efficiently treated, but will probably not cause serious or disabling deformity.

TREATMENT

The treatment is simple. The general hygiene should be looked into, overwork at school and at home prevented, and if the resistance of the child is below normal the day should be shortened slightly by a period of recumbency during the day.

The question of clothes is an important one and should be investigated. Most children of this age wear a waist with shoulder straps which rest near the tips of the shoulders. To this waist are attached the clothes, and also side elastic garters running to the stockings, which are kept very tight. The tension of these elastics is transmitted by the waist to the straps over the shoulders, and the shoulders are continually pulled downward and forward. Round garters should be substituted for side elastics in these cases, the clothes suspended from the waist should be as light as possible, and in many instances they may be supported from a belt.

If there is any reason to suspect a visual error leading to an improper position in reading, the eyes should be examined and such error corrected. It is advisable in all instances to go into the question of a short leg, not by a measurement from anterior superior spine to the internal malleolus, which is of little practical value and often misleading, but by placing under the foot on the side to which the spine curves enough pamphlets to raise the pelvis on that side and see if an improved position of the spine results. If it does, a higher sole should be worn on that side with a view to inducing a constant improvement in the spinal position.

With these preliminaries taken care of, the treatment should consist of a special set of gymnastics which are within the range of any good teacher of gymnastics, consisting practically of a setting-up drill similar to that given to army recruits. Such patients should exercise daily for half an hour or an hour under the supervision of the teacher until they can maintain a symmetrical position for a few minutes, when they can be allowed to do the exercises at home under the supervision of a parent, and report for observation. The gymnastic work should be individual and class work discouraged.

The daily active treatment should generally not cover a period of more than from one to three weeks under favorable conditions, but the observation period should last for at least a year. Under these conditions the prognosis for a complete cure is excellent, but exercises must be done with precision and vigor, and the general condition of the child must be regarded.

These cases may then be dismissed from our consideration and we can pass to our real problem—the treatment of structural lateral curvature.

ORGANIC OR STRUCTURAL LATERAL CURVATURE

This is accompanied by changes in the spinal structure, with deformity in the vertebræ. The phenomena cannot be reproduced experimentally, and the condition is outside of the normal behavior of the spine and implies structural change. Severe cases in childhood are due to one of five causes.

1. A congenital anomaly of the spine, such as split vertebræ, defective ribs, etc., a class of cases only recently recognized as so important, and until the general use of the x-ray not generally understood.
2. Infantile paralysis.
3. Empyema.
4. Rickets.
5. A softness of the bones which we must assume without direct evidence of rickets, but in which bony deformity is so great that it is evident that the bony resistance is below the normal.

The characteristics of organic lateral curvature are definite curves, either single or double—more often the latter—and much more marked than in the postural class, in some cases running to extreme deformity. There is always a rotation of the vertebræ or horizontal twist at the site of the curve, and in bending forward, with the trunk horizontal and the arms hanging, there is always to be seen a more or less marked upward bunch or prominence in the affected region on the side to which the spine curves, that is, on the convex side of the lateral curve. If the curve is double, there are two rotations corresponding to the two curves. This is a constant characteristic, and is diagnostic of this type of curvature. A right curve has always a right prominence and *vice versa* on the other side. The curve does not disappear on lying down, and the x-ray shows a deformity of the vertebræ, with compression of the intervertebral disks on the concave side, and in the more advanced cases, with a wedge-shaped deformity of the vertebræ. Distortion of the figure, the elevation of one shoulder, the prominence of one ilium, a general displacement of the body to the side, etc., are the results and expression of this bony spinal deformity.

It must be clearly recognized that these are the cases that present the difficulty in treatment, the vertebral column in these cases being deformed to some extent, with the changes mentioned, namely, shortened ligaments and muscles, compressed disks, and, in the severe cases, wedge-shaped vertebræ. In addition to these deformities to the side, the vertebræ twist on a vertical axis and are thus distorted along with the ribs and the bony structures of the thorax, which share in the deformity in severer cases. These changes in the lateral and in the horizontal direction result in distortion of the viscera, compression of the lungs, displacement of the heart and disturbance of the abdominal viscera, which in severe cases predispose to impaired digestion, deficient chest capacity, and in general to impaired resistance, so that it is safe to say that as a rule patients with severe scoliosis in adult life are badly nourished and have an impaired resistance. Extreme deformity may result in the severest cases.

TREATMENT

Having thus defined very briefly the essentials of the condition, we come to the very difficult question of how such cases should be treated. As the keynote of the treatment to be advocated, we must recognize that bone is an adaptive structure, and in its growth follows the line of least resistance, and we must remember also that we are dealing with a lateral bony deformity of the spine. Putting these two considerations together, it would seem as if our best chance of remedying the bony deformity was to force the spine into as normal a position as can be obtained, and to hold it in that position during part of the period of growth. This is, in brief the treatment that will be advocated.

The majority of such cases in this country, as a matter of fact, are at present treated by gymnastics, and one rarely sees a bad case in which this treatment has not

Figure 2

[illegible]

from the [illegible]

[illegible] general surgical [illegible] as follows [illegible] exists between [illegible] child of [illegible] an hour's [illegible] or other [illegible] gravity [illegible] Our knowledge [illegible] would not allow us [illegible] is allowed and [illegible] the spine [illegible] treatment in [illegible] good, but [illegible] a certain [illegible] the same [illegible] position. A spine with severe lateral [illegible] a treatment analogous to that universally recognized as effective in the cure of congenital club-foot, namely, securing a proper position of the deformed structures and maintaining this position until the bones are reshaped by growth. In the treatment to be advocated for this grade of lateral curvature, no more attention in the beginning is paid to the muscles than is the case in the treatment for club-foot, which is a radical departure from accepted views.

A curious experience directed our attention to the possibility of this method. A girl with severe lateral curvature applied at the Children's Hospital for treatment. A forcible plaster jacket was applied and an *x*-ray of the spine in the corrected position taken through windows cut in the jacket. The girl was instructed to return in two weeks to have the jacket changed. Instead of returning in fourteen days, she stayed away fourteen months and came back wearing the same jacket. The improvement in her position at the end of this time was extraordinary, and an *x*-ray of the spine taken at the second visit showed an improvement in the bony curve. This suggested a treatment which has been followed out in modified form during the last three years.

For moderate and severe structural lateral curvature the treatment is of two kinds, either (1) by the use of a permanent corrective jacket worn for long periods, or (2) in its modified form by the use at first of a corrective jacket followed by a removable jacket and exercises.

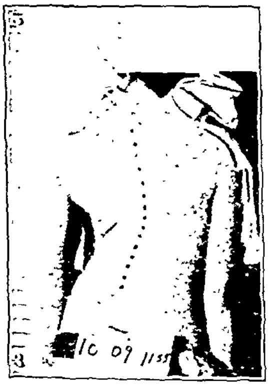

Fig. 4.—Girl aged 16, before treatment.

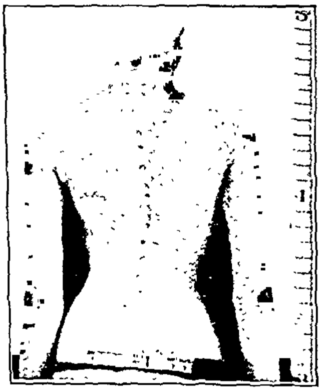

Fig. 5.—Girl aged 17, after fourteen months' treatment by removable jackets without exercises.

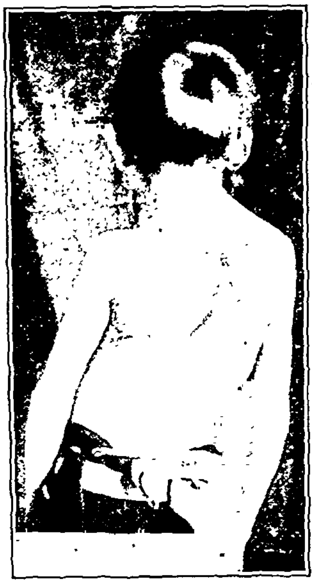

Fig. 6.—Boy aged 12, before treatment.

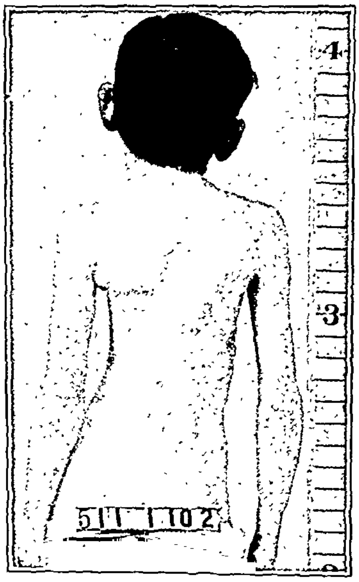

Fig. 7.—Boy aged 14, after two years' treatment by means of permanent jackets.

Permanent Jackets.—The first form, the permanent forcible jacket, is better suited to hospital practice than the other. We have for two years been taking cases of similar grades in the clinic and treating some by one method and some by the other, as a result of which we have come to the conclusion that the treatment by permanent jackets produces better results. The treatment by permanent jackets is as follows: Either in recumbency or in suspension a jacket is applied to the patient, securing the best obtainable position without the use of high degrees of force. At first we used the recumbent position with considerable amounts of force, but in hospital practice sloughs occurred, and if much force was used, occasionally trouble with respiration followed, and experience has shown us that we can obtain the same efficiency without the risk by the use of smaller degrees of corrective force in the initial jacket put on in suspension.

When the jacket is hardened, it is left solid over the parts that are made prominent by the rotation behind and in front, that is, in a right dorsal curve the right back and left front are not touched, but large windows are cut over the depressed side of the chest behind and the corresponding portion diagonally opposite in front, so that in a right dorsal curve the left side would be cut out behind and the right side in front. This makes it possible for the depressed parts of the chest to be expanded by respiration, while the prominent parts are compressed. Pads of felt are now inserted between the prominent part of the chest behind and the jacket, and sometimes in the corresponding region in the front, thus making the jacket more corrective, and thicker pads are substituted each week without changing the jacket, these being drawn through without difficulty by means of a bandage. In this way, a continual diagonal side-pressure is kept up on the curved portion of the spine and is steadily increased. At the end of two or three months, it will be found that it is advisable to apply a new jacket, to cut it out in the same way and to begin on the progressive padding. The use of such a permanent jacket is continued for a period of from one to two years, being changed at long intervals, and at the end of this time a removable jacket is substituted for the permanent one and gymnastic treatment is begun. The removable jacket is then gradually discontinued while the patient's muscular condition is being improved by gymnastic exercises.

Removable Jackets.—As in the former method, the second treatment, that by removable jackets, is started by the application of a forcible jacket either in recumbency or suspension. This is followed by a second jacket at an interval of a week. After the application of the second jacket, the patient is suspended and a plaster jacket is applied which is immediately cut off to serve as a mold, and a third forcible jacket is applied to be worn while the removable apparatus is being made. The jacket which is to serve as a mold is then bound together and filled with plaster of Paris and water, a torso thus being obtained. This torso is then remodeled by cutting off on the prominent side and building up on the other side, until it has become decidedly more symmetrical than the patient. It is also sawed in halves at the waist and set apart about an inch in order to secure continued extension.

already been pursued and has failed. There are, apparently, two reasons for this. First, the treatment by pure gymnastics is inadequate for any but slight and moderate cases, and therefore unsuited to the treatment of severe cases, and second, in general it is ineffectually given, because the average medical gymnast thinks if he gives a treatment which he has reason to believe is proper, his responsibility ends; he does not measure the efficiency of his treatment by the results. If gymnastic treatment is to be given for cases of more than slight grade, let it be given as it is in Europe, where a patient goes to an institute and lives, abandoning school and family, works for several hours a day in specially constructed apparatus, spends perhaps hours in a recumbent position, and pursues this treatment for month after month under the supervision of skilled assistants. Under these conditions one may expect results from gymnastic treatment in properly selected cases; but contrast that treatment with what is generally given here as the gymnastic treatment, an exercise period perhaps three times a week with the patient under no supervision in the meanwhile and wearing no apparatus, the treatment interrupted by home demands, illness and other conditions, followed out in a half-hearted way for some months and finally abandoned. It is not reasonable, under these conditions, to expect much from the gymnastic treatment.

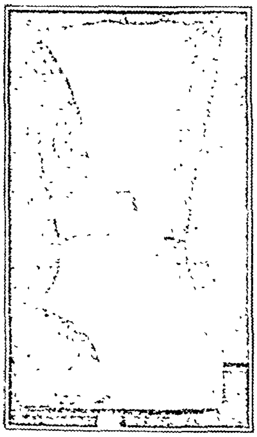

Figure 1.

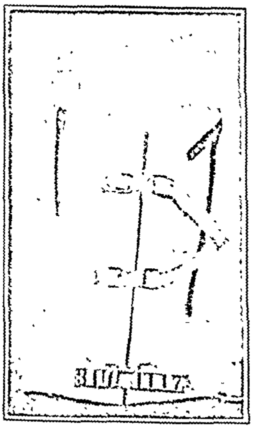

Figure 2.

Fig. 1.—Remodeled torso ready for application of jacket, in a case of right dorsal left lumbar scoliosis which has been cut in two at the waist and set apart 1 inch, so as to increase the upward pressure on the ribs. The dark areas on left of the torso show where plaster has been added on the concave side to allow for correction of displacement and deviation.

Fig. 2.—Front of jacket made over torso shown in Figure 1. Note shoulder pad.

If we look at the facts from a general surgical point of view, the condition seems to be as follows: A deformity analogous to knock-knee exists between each two vertebræ. We would not in a child of 8, for example, expect to cure knock-knee by an hour's muscular exercise given three times a week or oftener, while the rest of the time, except during sleeping, gravity is at work to exaggerate the condition. Our knowledge of the principles of general surgery would not allow us to sanction such a treatment, but it is allowed and sanctioned in an analogous deformity affecting the spine.

Moreover, not only does gymnastic treatment in the severe grade of cases as a rule do no good, but if effectually carried out, it does harm up to a certain point by loosening up a stiff spine and allowing the spine to sag farther into the bad position. A spine with severe lateral curvature soon becomes stiff and gets slowly worse, but if it is loosened by effective gymnastics, the side thrust of the superincumbent weight is so great that it becomes rapidly worse and the patient's average standing position is worse than before treatment was begun.

The rule should be, therefore, either (1) not to use gymnastics alone in any but slight cases, (2) to keep the patient recumbent until the gymnastics have developed muscles as well as restored flexibility, or (3) to use a support in connection with gymnastics to hold the improved position.

The use of gymnastics alone in lateral curvature of the spine should be limited to the slighter grades of structural curves. Such gymnastics should obviously have two aims, (1) to restore flexibility, and (2) to cultivate the holding power. The exercises should be done with vigor and precision for at least an hour daily, and they are to be regarded as effective only so long as they produce manifest improvement. Gymnastic treatment should be stopped temporarily if the patient loses weight, becomes irritable or languid, or if the menstruation in girls becomes profuse. The gymnastics to be used are to be found in the text-books on orthopedic surgery and in certain French and German books devoted to the subject.[1] Until the medical profession insists on the adequate and careful performance of gymnastic treatment and limits it to suitable cases it will fall into even greater disrepute than now.

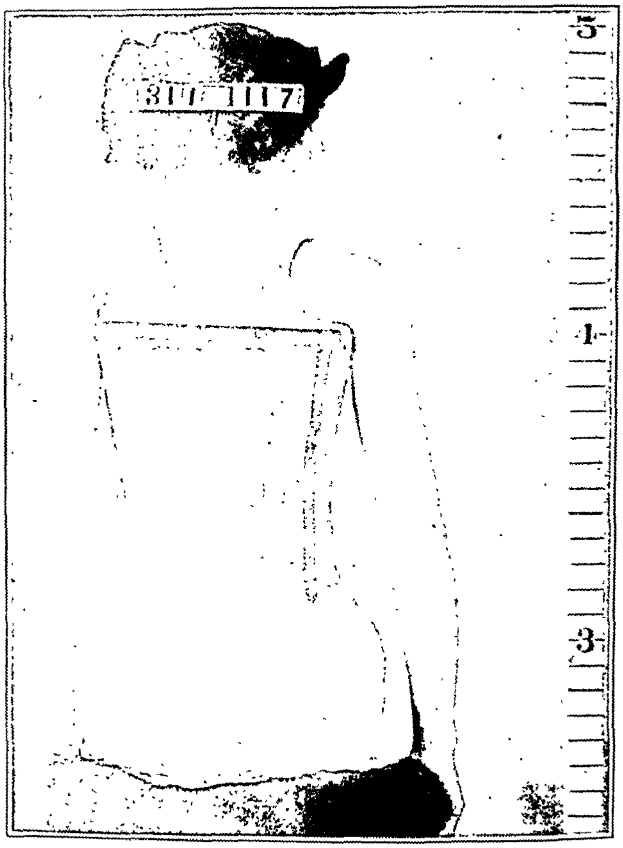

Fig. 3.—Patient in jacket shown in Figure 2. Note window on concave side. Jacket reinforced by steel strips.

Recognizing then the need of attacking moderate and severe lateral curvature as a bone problem, we advocate

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1. Wilbouchewitch: Gymnastique, orthopédique, Paris, 1903. Mikulicz and Tomas Cwzewski: Orthopädische Gymnastik., Jena, 1904. Lovett, R. W.: Lateral Curvature of the Spine, Phila., 1907. Klapp: Funktionäle Behandlung der skoliose, Jena, 1910.

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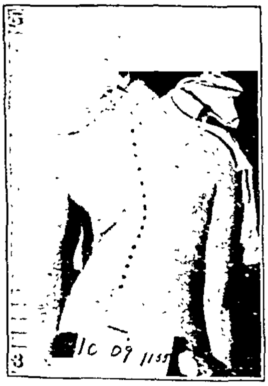


Fig. 4.—Girl aged 16, before treatment.

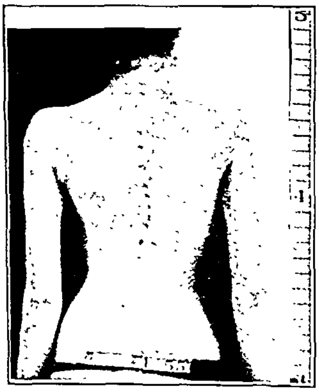


Fig. 5.—Girl aged 17, after fourteen months' treatment by removable jackets without exercises.

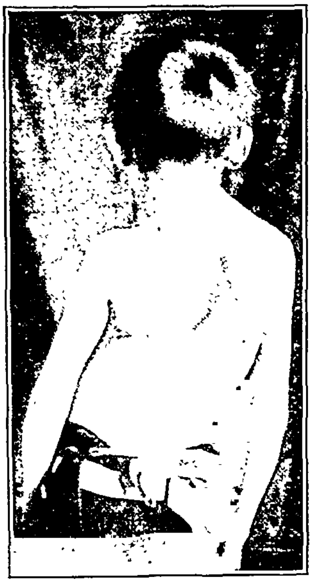


Fig. 6.—Boy aged 12, before treatment.

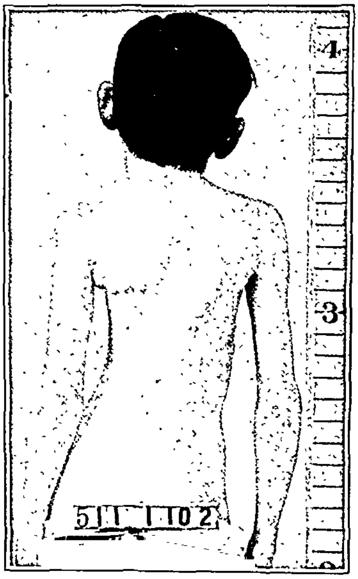


Fig. 7.—Boy aged 14, after two years' treatment by means of permanent jackets.

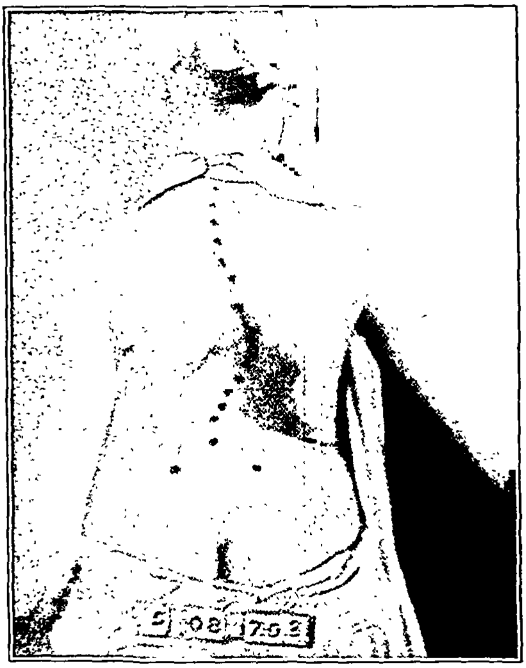
Permanent Jackets.—The first form, the permanent forcible jacket, is better suited to hospital practice than the other. We have for two years been taking cases of similar grades in the clinic and treating some by one method and some by the other, as a result of which we have come to the conclusion that the treatment by permanent jackets produces better results. The treatment by permanent jackets is as follows: Either in recumbency or in suspension a jacket is applied to the patient, securing the best obtainable position without the use of high degrees of force. At first we used the recumbent position with considerable amounts of force, but in hospital practice sloughs occurred, and if much force was used, occasionally trouble with respiration followed, and experience has shown us that we can obtain the same efficiency without the risk by the use of smaller degrees of corrective force in the initial jacket put on in suspension.

When the jacket is hardened, it is left solid over the parts that are made prominent by the rotation behind and in front, that is, in a right dorsal curve the right back and left front are not touched, but large windows are cut over the depressed side of the chest behind and the corresponding portion diagonally opposite in front, so that in a right dorsal curve the left side would be cut out behind and the right side in front. This makes it possible for the depressed parts of the chest to be expanded by respiration, while the prominent parts are compressed. Pads of felt are now inserted between the prominent part of the chest behind and the jacket, and sometimes in the corresponding region in the front, thus making the jacket more corrective, and thicker pads are substituted each week *without changing the jacket*, these being drawn through without difficulty by means of a bandage. In this way, a continual diagonal side-pressure is kept up on the curved portion of the spine and is steadily increased. At the end of two or three months, it will be found that it is advisable to apply a new jacket, to cut it out in the same way and to begin on the progressive padding. The use of such a permanent jacket is continued for a period of from one to two years, being changed at long intervals, and at the end of this time a removable jacket is substituted for the permanent one and gymnastic treatment is begun. The removable jacket is then gradually discontinued while the patient's muscular condition is being improved by gymnastic exercises.

Removable Jackets.—As in the former method, the second treatment, that by removable jackets, is started by the application of a forcible jacket either in recumbency or suspension. This is followed by a second jacket at an interval of a week. After the application of the second jacket, the patient is suspended and a plaster jacket is applied which is immediately cut off to serve as a mold, and a third forcible jacket is applied to be worn while the removable apparatus is being made. The jacket which is to serve as a mold is then bound together and filled with plaster of Paris and water, a torso thus being obtained. This torso is then remodeled by cutting off on the prominent side and building up on the other side, until it has become decidedly more symmetrical than the patient. It is also sawed in halves at the waist and set apart about an inch in order to secure continued extension.

On this corrected torso a plaster jacket is applied which is to be the removable jacket worn by the patient. This removable jacket should be supplied with shoulder pads to hold the shoulders in position, and should open down the front, being supplied with buckles and straps or lacings. It may also be advisable to slash such jackets over the iliac crests. The addition of 5 per cent. Portland cement to the plaster with which the jacket is made gives greater strength and durability. This jacket is to be worn by the patient night and day and to be removed only for the exercise period, which should consist of one hour or more daily, the exercises being of the type mentioned above. When the jacket is applied, it is sprung open and slipped on the patient, who then lies on the back, and the arms and legs are pulled on to extend the spine. It is then buckled tightly in place before the patient stands up.

Jackets of either kind should be tested for efficiency by measuring the height of the patient with and without the jacket. Without the jacket the patient places the hands on the hips and pushes up, making himself as tall as possible, and his height is taken in this position. The jacket is then applied and the patient's height is again taken. If the jacket does not hold him in as good a position, as estimated by height, as the patient can possibly assume with the hands on the hips, it is discarded and a more corrective one is made. In these jackets it is often advisable to cut the windows as in the permanent form, and to use padding in addition to the correction of the torso.



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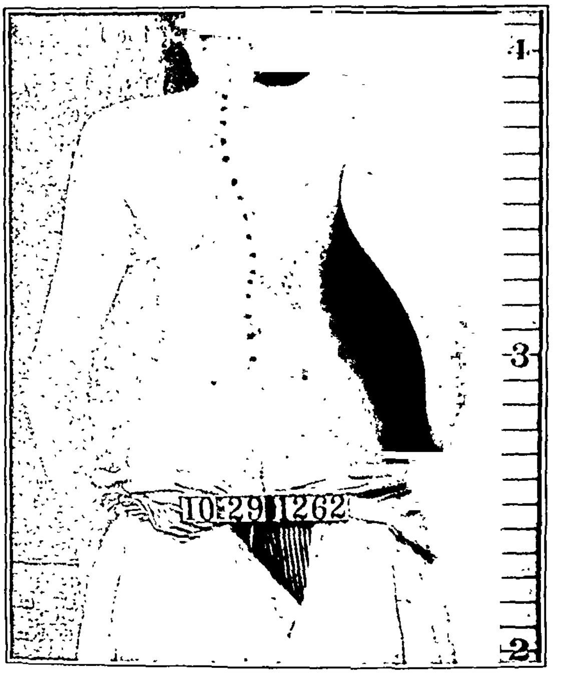

Fig. 9.—Girl aged 18, after two and one-half years' treatment by means of a series of permanent jackets.

If such a jacket is worn by a patient who is making good progress, in a few weeks from the beginning of treatment it will be found to be inefficient and not to be holding him on account of his improvement. Under these conditions the torso must be again remodeled, more cut away from the prominent side and greater pressure exerted. In the course of a year, probably two or three such remodelings would be required. These jackets may be made of leather or celluloid if preferred rather than plaster, but the plaster is perfectly efficient, although heavier.

This treatment is more acceptable than the former to private patients, and where the patient is under complete control, it is probably nearly as efficient as the other, although perhaps taking a little longer time. When such treatment as the latter has been continued over a period of a year or more in the severer cases, a trial may be made of removing the jacket for a short period each day and watching the patient during this period, the jacket being gradually abandoned as the patient's corrective power increases. In neither form of treatment in severe scoliosis is the treatment likely to last less than two years, although in the moderate forms it may take less time to secure the desired results.

Finally, it may be well to meet two criticisms which are likely to be made. In the first place, the results are presented by photographs, patients unconsciously pose, shadows distort, and the method is not scientifically accurate. At the same time, in this clinic we have tried many other methods of measurement, including the Schultess machine for recording lateral curvature, and after a careful trial of each we have returned to photographs as, on the whole, the most reliable and practical method of presenting results.

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234 Marlboro Street.

MILD CASES OF HOOKWORM DISEASE IN CHILDREN

THOMPSON FRAZER, M.S., M.D.
ASHEVILLE, N. C.

One of the first results of the systematic study of any disease is the discovery that, in addition to the so-called typical cases, there are many others so mild in character that they are at first entirely overlooked. To many, no doubt, hookworm disease at once suggests a picture of extreme pallor and emaciation, with considerable edema and a hemoglobin percentage of thirty or under; it is less well known that one may harbor hookworms and that their presence may be entirely unsuspected. After the removal of the worms by a course of thymol, the patient will often gain rapidly in weight and strength (and, if a child, in height), showing that, though the effect of the parasites on nutrition is at times slight, it should not be disregarded.

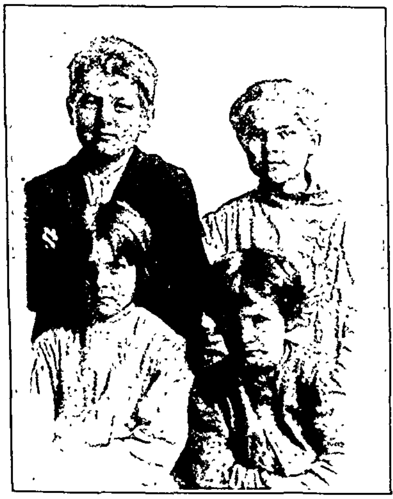

Fig. 1.—Four children of one family treated for hookworm disease. These children show little evidence of symptoms of the disease.

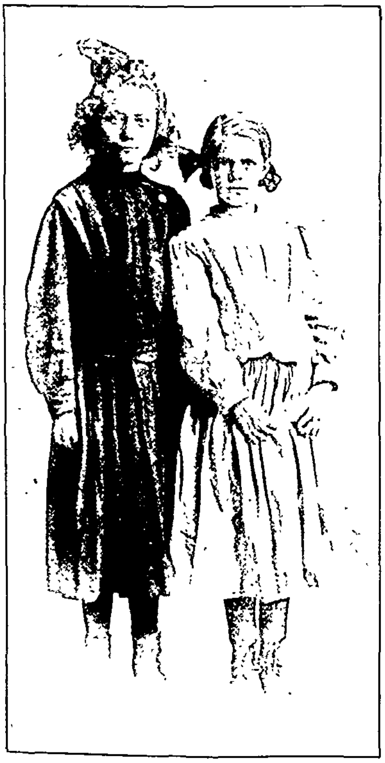

Fig. 2.—Two girls treated for hookworm disease. The taller is 11 years of age; the smaller girl, who is much stunted in growth, is 15 years of age.

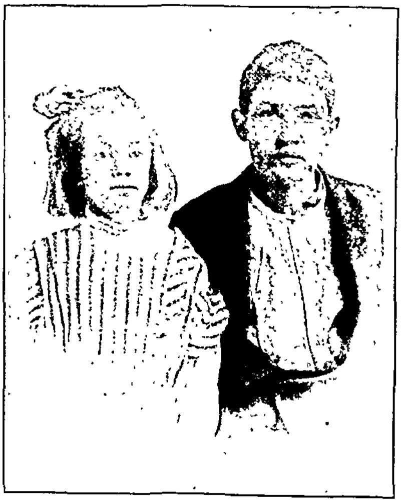

Fig. 3.—Two victims of hookworm disease whose symptoms are more marked than those of the other children shown.

I present the pictures of a few of the children treated this winter and spring for uncinariasis at the Asheville Free Dispensary. I have purposely selected the milder cases.

Figure 1 shows four children of one family; they are, respectively, 3½, 6, 8 and 12 years of age. The two larger children are quite healthy in appearance, the others although not so robust do not appear sickly. The size and weight of each compares favorably with the norm. In none of them were there digestive disturbances, edema or pallor; and the hemoglobin ranged between 85 and 95 per cent.

Figure 2 is of interest in that some of the more characteristic features of the disease are shown. The taller girl, aged 11, is not undersized and might have been included in the first picture but for a somewhat sickly expression and a languid manner. The smaller girl, nearly 15 years of age, is very much stunted; the breasts are undeveloped and the mentality low. Note the prematurely aged expression of her face.

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All of the children that I have been able to follow up have shown marked improvement in a few weeks. I gave them from one to three thymol courses and then put them on Blaud's pills and the results have been more than satisfactory. The teachers testify that after the thymol treatment many of the youngsters were transformed from dullards into normal, mischievous children.

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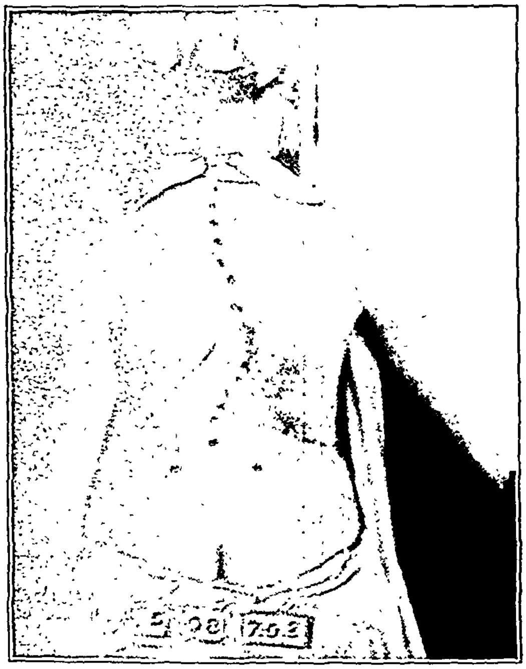

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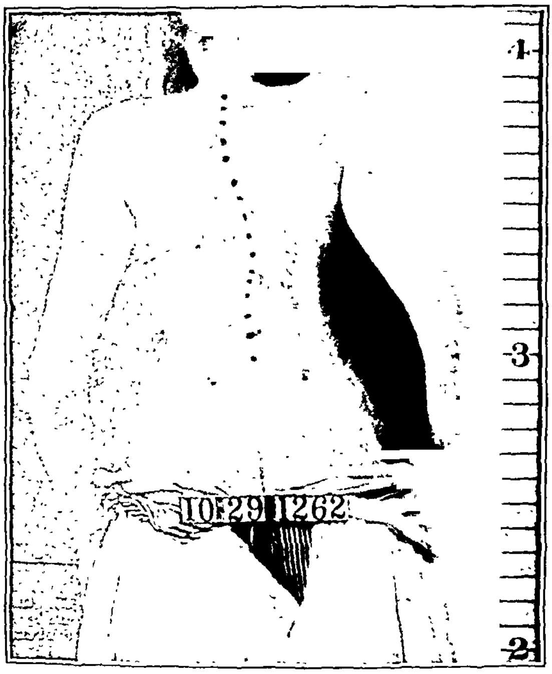

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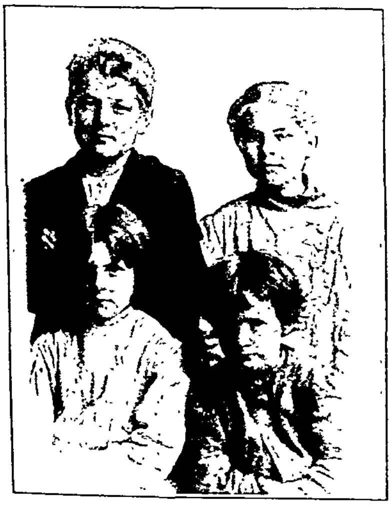

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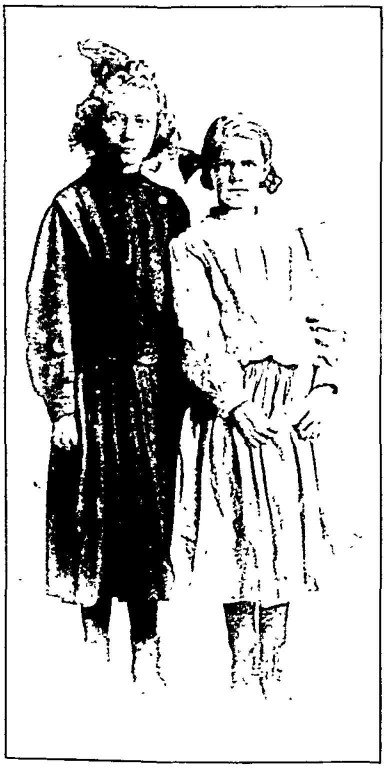

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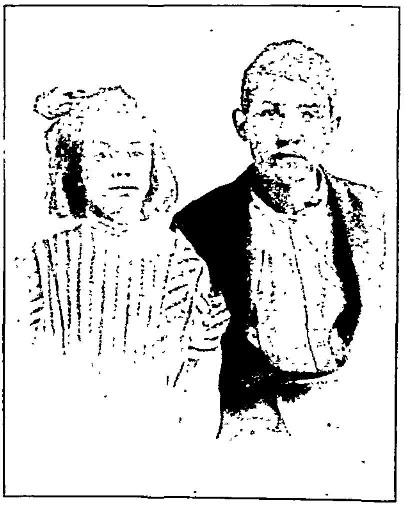

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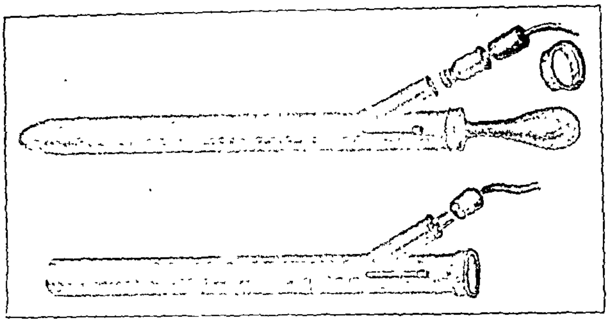
The use of tubes which are arranged with a small electric light on the distal end has meant a marked advance in our knowledge of the upper rectum and sigmoid. The chief objection to this method of illumination is the frequency with which the small lamp or its protecting capsule of glass becomes smeared with feces or other discharges. This necessitates the withdrawal of the speculum or the light-carrier and sometimes an annoying delay in the examination. The lumen of the examining tube is encroached on by the light, and its carrier or an accessory tube applied along the outside makes the passage of the speculum more uncomfortable. The tiny electric lights with their especially made bases are easily burned out, causing considerable annoyance and in the long run some expense.



New proctoscope and sigmoidoscope.

A wonderfully satisfactory illumination is secured by the new principle of lighting examining tubes herewith described. As illustrated, a flat-faced metal filament lamp, having the standard miniature base, is snugly held in a tube which projects at an agle of thirty degrees from the main tube. The inside of the main tube is heavily plated and highly polished with lines of polish running lengthwise of the tube. The lamp-holding tube is of exactly the same size in all instruments and the same lamp-carrier serves for any number of instruments. Owing to the manner of polishing no light is thrown back into the eye from the walls of the tube, all the rays going to the distal end. The light is carried brilliantly to and even several inches beyond the end of as long a tube as could possibly be of practical use.

Entrance into the sigmoid is occasionally facilitated by inflation of the bowel or puffing aside obstructing folds of mucous membrane. In this instrument the glass window is made the full size of the lumen of the tube and does not obscure the view in the least. The metal collar which holds the glass screws on to the end of the tube, making a perfectly air-tight joint. To the small offset tube a small hand-bulb is attached when inflation is to be used. These features are necessary or useful in only a comparatively small proportion of cases and are not used on the tubes which are spoken of as proctoscopes.

The end of the obturator is much less blunt than in previously made instruments. Bluntness is not necessary for safety, as it is customary to withdraw the obturator after effecting an entrance through the anus and then to make farther entrance into the rectum by sight. It is ite remarkable how much more easily this olive-shaped urator passes through the anal canal than do the er blunt-ended obturators.

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Patient, 19 years old, suffering from cardiac displac
pleurisy.

displaced into the right side and still for ma
perform its function. Indeed, in this case, th
displacement itself seemed to produce little or
comfort. Death was indirectly due to the cardiac
tation, and compensatory failure was not pronou
until late in the case.

History.—The patient, M. S., a girl aged 19, was of Swedish descent, with light complexion, and "scrofulous." The family history was generally good. She weighed over 14 pounds when born, and was healthy and vigorous until 7 years old. At that time she contracted "a severe cold on the lungs," causing shortness of breath. The family physician opened the pleural cavity, from which a large amount of pus was evacuated. For eleven years there was a continuous drain; consent to operation for radical cure was refused by the family. During a period of one year before death, the wound remained closed. Although greatly deformed and retaining the childish type of figure, the patient otherwise developed fully so that, until the great emaciation during her last months had wasted her, the arms and legs were strong, of full size and well proportioned. Mental development was rather above the ordinary; she had passed all the grades in public school up to the third year of high school.

Examination.—The heart was displaced entirely over to the right side of the sternum and filled the whole upper right side of the chest, being crowded up under the clavicle, the apex-beat striking sharply and being visible in the third right interspace, between the middle and outer third. Apparently, there was no lung-tissue above the heart, nor were respiratory sounds audible behind, until the lower part of the scapula was reached. The entire respiratory act seemed to be performed by the lower and middle lobes of the right lung. The left lung had atrophied.

Course of Disease.—Dilatation, though caused partly by the pulmonary obstruction, was also, to no small extent, due to the overexertion incident to school life. The patient lived two miles from school and had to climb a hill to reach it. During winter season the snow drifts were often three feet deep, yet, she scarcely missed a day. During the last winter of her life, the distress caused by swelling of her limbs and breathlessness forced her to abandon her studies. Death resulted from an intercurrent catarrhal pneumonia of probably influenzal origin that terminated in pulmonary edema. No autopsy was procured.

THE ELICITATION OF THE KNEE-JERK

AUGUSTUS A. ESHNER, M.D.
PHILADELPHIA

In addition to common and accepted methods of eliciting the knee-jerk, including that described by Dr. Curran Pope,[1] I have found two procedures useful in this connection. The one consists in supporting the leg to be examined on an inclined plane, while the patient is seated, the inclination being susceptible of variation in accordance with the requirements of the individual case. (Fig. 1.) By this means, relaxation of the lower extremity is secured independently of the volition of the patient, and the limb can be placed in a position most favorable for the development of the reflex. This device is particularly useful in the case of obese individuals and of those persons, old or young, who are either unable or unwilling to cooperate with the examiner, or who oppose or resist his efforts.

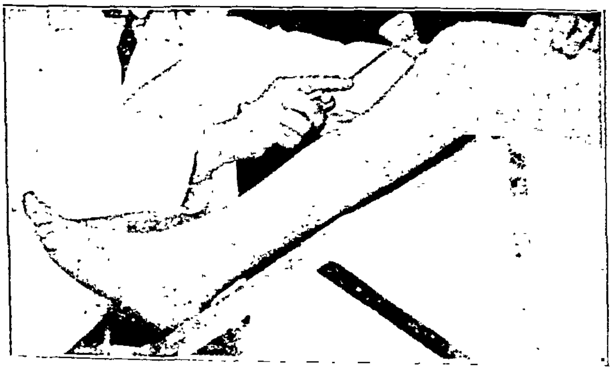

Fig. 1.—Leg supported on inclined plane, while patella tendon is struck with plexor and hand is applied over quadriceps extensor tendon.

The second procedure consists in the application of the palmar surface of the index-finger of one hand over the patellar tendon and striking the dorsal surface of this finger with a percussion-hammer or with the opposite clenched hand. (Fig. 2.) In this way a slight contraction of the tendon can sometimes be felt when it cannot be seen and when the leg is not thrown forward in extension.

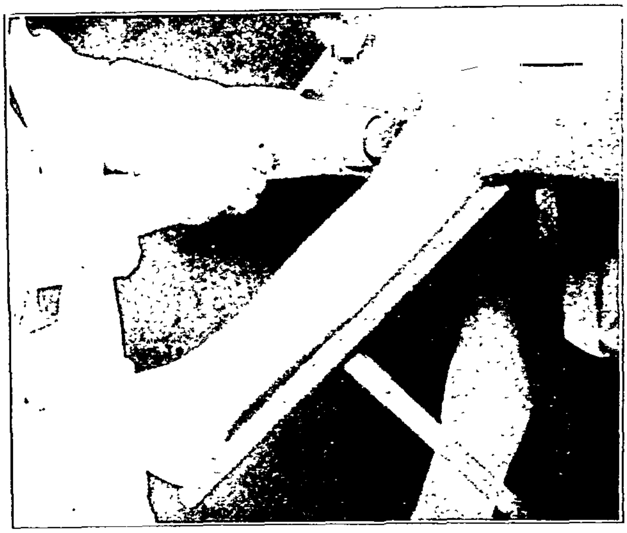

Fig. 2.—Leg supported on inclined plane, with finger applied over patella tendon and to be struck by plexor.

When there is doubt as to the presence of the knee-jerk, it is useful also to apply the palmar aspect of one hand over the quadriceps muscle or its tendon, while the patellar tendon is struck with a plexor or with the ulnar margin of the other hand (Fig. 1).

Under any of the circumstances mentioned, it is best in attempting to elicit the knee-jerk to bare the knee entirely, so that the stimulating blow is applied directly to the cutaneous surface overlying the tendon.

1019 Spruce Street.

SOME LESSONS DRAWN FROM A SERIES OF TWENTY-EIGHT EXTERNAL OPERATIONS ON FRONTAL SINUS AND ETHMOID LABYRINTH *

HENRY HORN, M.D.
SAN FRANCISCO

Having determined that an external operation on the frontal sinus and ethmoid labyrinth is necessary, there seems to be no question but that the terribly mutilating, truly radical operation of Riedel, with its complete destruction of the supra-orbital ridge, is the one which gives us the greatest certainty of a cure. The resulting deformity is so great that the operation is scarcely ever carried out to-day, but the Killian operation, or some of its modifications, is substituted.

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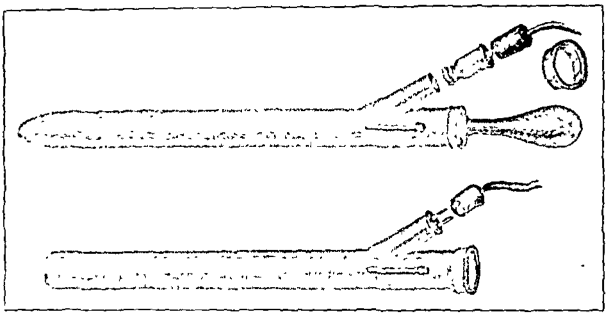
[1] Pope: The Journal A. M. A., June 10, 1911, p. 1705.

* Read in the Section on Laryngology, Otology and Rhinology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

torily thrown through the window such as is used to close the proximal end of the tube in effecting distention with air.

The use of tubes which are arranged with a small electric light on the distal end has meant a marked advance in our knowledge of the upper rectum and sigmoid. The chief objection to this method of illumination is the frequency with which the small lamp or its protecting capsule of glass becomes smeared with feces or *other discharges. This necessitates the withdrawal of* the speculum or the light-carrier and sometimes an annoying delay in the examination. The lumen of the examining tube is encroached on by the light, and its carrier or an accessory tube applied along the outside makes the passage of the speculum more uncomfortable. The tiny electric lights with their especially made bases are easily burned out, causing considerable annoyance and in the long run some expense.



New proctoscope and sigmoidoscope.

A wonderfully satisfactory illumination is secured by the new principle of lighting examining tubes herewith described. *As illustrated, a flat-faced metal filament* lamp, having the standard miniature base, is snugly held in a tube which projects at an agle of thirty degrees from the main tube. The inside of the main tube is heavily plated and highly polished with lines of polish running lengthwise of the tube. The lamp-holding tube is of exactly the same size in all instruments and the same lamp-carrier serves for any number of instruments. Owing to the manner of polishing no light is thrown back into the eye from the walls of the tube, all the rays going to the distal end. The light is carried brilliantly to and even several inches beyond the end of as long a tube as could possibly be of practical use.

Entrance into the sigmoid is occasionally facilitated by inflation of the bowel or puffing aside obstructing folds of mucous membrane. In this instrument the glass window is made the full size of the lumen of the tube *and does not obscure the view in the least.* The metal collar which holds the glass screws on to the end of the tube, making a perfectly air-tight joint. To the small offset tube a small hand-bulb is attached when inflation is to be used. These features are necessary or useful in only a comparatively small proportion of cases and are not used on the tubes which are spoken of as proctoscopes.

The end of the obturator is much less blunt than in previously made instruments. Bluntness is not necessary for safety, as it is customary to withdraw the obturator after effecting an entrance through the anus and then to make farther entrance into the rectum by sight. It is quite remarkable how much more easily this olive-shaped obturator passes through the anal canal than do the older blunt-ended obturators.

As the illumination of the distal end depends on the polish of the inner wall of the tube it is essential that some care be taken to keep the inside clean and free from tarnish. The easiest and best way of doing this is to force a narrow towel through the lumen, the first part of the towel being moistened with soapy water. The dry part is later pulled back and forth through the tube until a satisfactory polish is reestablished. Although *not absolutely necessary it is well to make it a habit to* clean the inside in this way each time after sterilization.

Three styles of the instrument are made. Two short tubes differing in caliber are designated as the large and small proctoscope. These are simpler than the tube illustrated, having no appliance for inflation. Either of these cheaper forms of instruments will be found satisfactory in the large majority of cases where high examination of the sigmoid is not to be attempted. The third style, designated as the sigmoidoscope, differs from the others in its greater length and parts added for air *dilatation.*

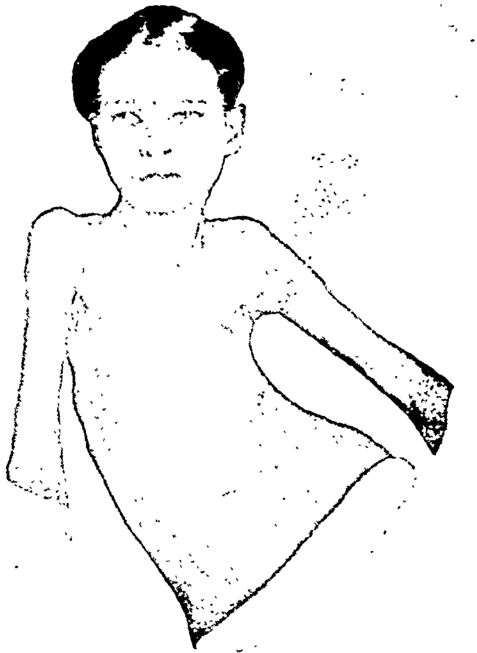
Only practical experience with these instruments could possibly convince one of the remarkable illumination secured and of the ease with which thorough examination and instrumentation can be accomplished in all cases.

84 Remsen Street.

CARDIAC DILATATION AND DISPLACEMENT DUE TO PLEURISY

EVAN O'NEILL KANE, M.D.
KANE, PA.

The following history, with accompanying illustration, *demonstrates how completely the heart can be* displaced into the right side and still for many years perform its function. *Indeed, in this case, the mere* displacement itself seemed to produce little or no discomfort. Death was indirectly due to the cardiac dilatation, and compensatory failure was not pronounced until late in the case.



Patient, 19 years old, suffering from cardiac displacement due to pleurisy.

History.—The patient, M. S., a girl aged 19, was of Swedish descent, with light complexion, and "scrofulous." The family history was generally good. She weighed over 14 pounds when born, and was healthy and vigorous until 7 years old. At that time she contracted "a severe cold on the lungs," causing shortness of breath. The family physician opened the pleural cavity, from which a large amount of pus was evacuated. For eleven years there was a continuous drain; consent to operation for radical cure was refused by the family. During a period of one year before death, the wound remained closed. Although greatly deformed and retaining the childish type of figure, the patient otherwise developed fully so that, until the great emaciation during her last months had wasted her, the arms and legs were strong, of full size and well proportioned. Mental development was rather above the ordinary; she had passed all the grades in public school up to the third year of high school.

Examination.—The heart was displaced entirely over to the right side of the sternum and filled the whole upper right side of the chest, being crowded up under the clavicle, the apex-beat striking sharply and being visible in the third right interspace, between the middle and outer third. Apparently, there was no lung-tissue above the heart, nor were respiratory sounds audible behind, until the lower part of the scapula was reached. The entire respiratory act seemed to be performed by the lower and middle lobes of the right lung. The left lung had atrophied.

Course of Disease.—Dilatation, though caused partly by the pulmonary obstruction, was also, to no small extent, due to the overexertion incident to school life. The patient lived two miles from school and had to climb a hill to reach it. During winter season the snow drifts were often three feet deep, yet, she scarcely missed a day. During the last winter of her life, the distress caused by swelling of her limbs and breathlessness forced her to abandon her studies. Death resulted from an intercurrent catarrhal pneumonia of probably influenzal origin that terminated in pulmonary edema. No autopsy was procured.

THE ELICITATION OF THE KNEE-JERK

AUGUSTUS A. ESHNER, M.D.
PHILADELPHIA

In addition to common and accepted methods of eliciting the knee-jerk, including that described by Dr. Curran Pope,[1] I have found two procedures useful in this connection. The one consists in supporting the leg to be examined on an inclined plane, while the patient is seated, the inclination being susceptible of variation in accordance with the requirements of the individual case. (Fig. 1.) By this means, relaxation of the lower extremity is secured independently of the volition of the patient, and the limb can be placed in a position most favorable for the development of the reflex. This device is particularly useful in the case of obese individuals and of those persons, old or young, who are either unable or unwilling to cooperate with the examiner, or who oppose or resist his efforts.

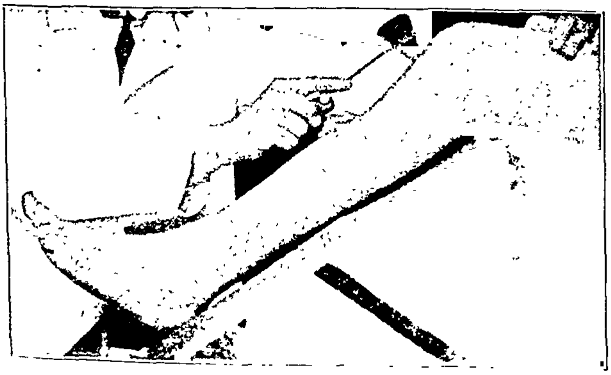


Fig. 1.—Leg supported on inclined plane, while patella tendon is struck with plexor and hand is applied over quadriceps extensor tendon.

The second procedure consists in the application of the palmar surface of the index-finger of one hand over the patellar tendon and striking the dorsal surface of this finger with a percussion-hammer or with the opposite clenched hand. (Fig. 2.) In this way a slight contraction of the tendon can sometimes be felt when it cannot be seen and when the leg is not thrown forward in extension.

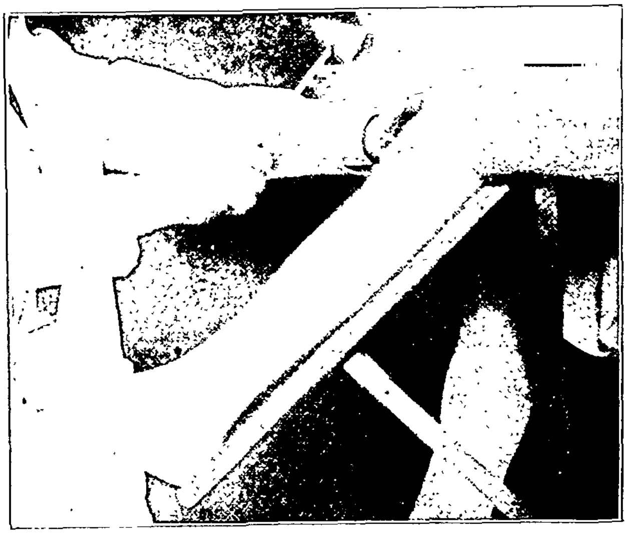


Fig. 2.—Leg supported on inclined plane, with finger applied over patella tendon and to be struck by plexor.

When there is doubt as to the presence of the knee-jerk, it is useful also to apply the palmar aspect of one hand over the quadriceps muscle or its tendon, while the patellar tendon is struck with a plexor or with the ulnar margin of the other hand (Fig. 1).

Under any of the circumstances mentioned, it is best in attempting to elicit the knee-jerk to bare the knee entirely, so that the stimulating blow is applied directly to the cutaneous surface overlying the tendon.

1019 Spruce Street.

SOME LESSONS DRAWN FROM A SERIES OF TWENTY-EIGHT EXTERNAL OPERATIONS ON FRONTAL SINUS AND ETHMOID LABYRINTH *

HENRY HORN, M.D.
SAN FRANCISCO

Having determined that an external operation on the frontal sinus and ethmoid labyrinth is necessary, there seems to be no question but that the terribly mutilating, truly radical operation of Riedel, with its complete destruction of the supra-orbital ridge, is the one which gives us the greatest certainty of a cure. The resulting deformity is so great that the operation is scarcely ever carried out to-day, but the Killian operation, or some of its modifications, is substituted.

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[1] Pope: THE JOURNAL A. M. A., June 10, 1911, p. 1705.

* Read in the S[illegible]on on Laryngology, Otology and Rhinology of the American Me[illegible]l Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

In Riedel's operation[1] there are no dead spaces left behind; in Killian's operation,[2] the dead spaces, with their subsequent difficult drainage, constitute that element of doubt which does not allow us always to promise a certain cure. Admitting the necessity of an external operation in any given case, how are we to overcome this intrinsic objection of dead space which is the weak point in an otherwise ideal operation?

In presenting the present series, I do not do so because of the number or the very satisfactory results which have been obtained, but because I think that certain lessons can be derived from this group of cases, and also because I believe I have something to offer, not only in the way of getting quicker and more lasting results, but of limiting the severity and extent of the operation and overcoming the problem of drainage of the dead spaces, which is the weakness of the Killian operation.

The simplest way to classify cases of chronic suppuration of the frontal sinus and ethmoid labyrinth is as follows: First, cases with cerebral or orbital complications which should all be operated on by the external method, and second, the vast majority of patients who come to us with headaches and pus discharge.

Most patients in this last class can, by intranasal methods, either be completely cured or their headaches relieved and the discharge reduced to what I take the liberty of designating a "specialist's minimum"—an amount of discharge which a well-trained rhinologist can control without danger to the patient over a long period of time. With this result the patient may be satisfied, the true surgeon never. I am not altogether certain my coinage of the phrase is a happy one, but I use it in contradistinction to the often-used expression, "safe minimum," meaning thereby that the patient can go on for the rest of his life with such a discharge without danger, an idea which Gerber[3] has shown to be false and dangerous.

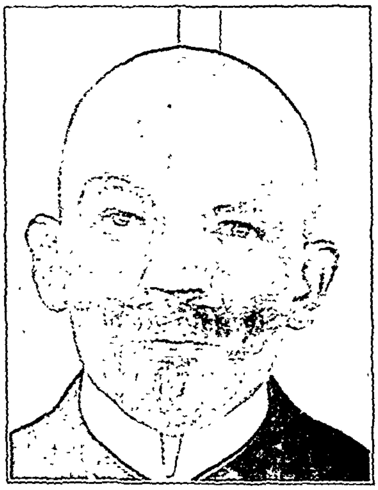
Fig. 1.—Right-sided Killian operation, with very large frontal sinus, necessitating vertical incision to hair line.

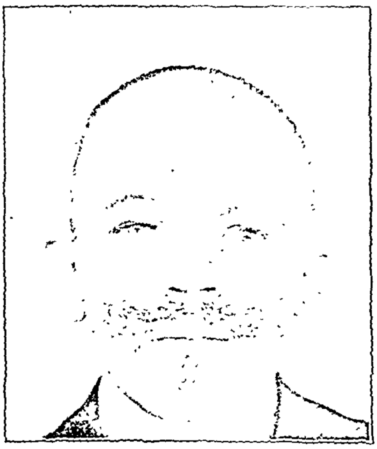
Fig. 2.—Same case as Fig. 1 after injecting large quantities of paraffin

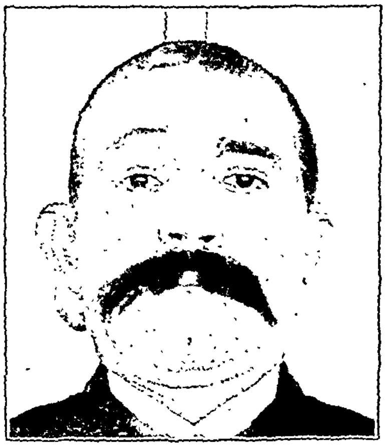
Fig. 3.—Extensive deformity after Killian operation, subsequently entirely filled out with paraffin.

There are many patients who are not in a condition to have constant attention even over a period of a few weeks. There may be considerations of time, finance and geography, that may cause what one might designate the sociologic operative indications to outweigh the clinical indications. The sociologic factor is more to be considered in America than in Europe. There the universal insurance system for workmen allows patients to remain away from work for weeks at a time. They lose nothing by it and their families are provided for. In every large city there are well-equipped special clinics, and the country districts are always within easy reach of the cities. In America, distances are great, insurance is unknown and clinics are scarce. The patient must be cured quickly, safely and radically.

During the last few years, an interesting wave of uncertainty has swept over the minds of European rhinologists in regard to the indication for the Killian operation. Since Gerber's book[3] appeared in the fall of 1908, reporting thirty-six postoperative deaths, there have been added not less than ten cases of the same kind.

This new chapter of postoperative, fatally terminating complications is the basis of this uncertainty, and that master of rhinologic technic, Hajek, has given the matter much serious study. His two recent fatal consecutive cases have altered his viewpoint of a few years ago. They occurred in cases in which no danger-signal appeared previous to the operation; they came at a period of his career when his operative experience was ripe, and nothing was neglected in the way of technic. Six days after the operation the first patient died of an *intradural abscess*; the second patient on the third day of a septic meningitis.

A study of such cases, so conscientiously reported, is the only means which give us a basis for improving our technical skill or reducing the mortality. The autopsies have impressed on us the one pregnant point—that the complications had their origin, not in the operated area, but in some overlooked ethmoid cell, some other neglected accessory cavity, especially in some area of pus which *had not been drained away*, and which had given rise to an area of infection.

These bitter experiences teach us not to neglect any possible method of determining the condition of the accessory cavities before the operation, and that perfect and constant drainage after the operation is the only protection which to my mind has been developed in recent years. These two prime requisites can be fulfilled by measured negative pressure alone.

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[1] Riedel: Dissertation. Publiziert durch Schenker, Jena, 1898.

[2] Killian: Arch. f. Laryngol., 1902, xiii.

[3] Gerber: Die Komplicationen der Stirnhöhlenentzündungen, S. Karger, Berlin, 1909.

Although originally designed as an aid in the after-treatment,[4] I have come to regard measured negative pressure as the most important accessory aid in the clinical diagnosis of accessory cavity disease, followed in the order of their importance by the *x*-ray and transillumination. By means of my differential method[5] with tampons and aristol combined with gradually increasing measured pressure,[6] one can exclude every cavity but the one under consideration; can determine whether the ethmoid cells are involved alone or in conjunction with the frontal; can tell whether the frontal alone is involved, whether the diagnostic washing out of the frontal sinus actually took place or whether an anterior frontal cell was entered; can differentiate between pus in the frontal sinus or a pus process grafted on a catarrhal process. These points can all be determined previous to the operation and give us a great increase in security.

The greatest protection which we have against a fatal termination, and the greatest security for an absolute cure, is the preliminary intranasal work, which, if possible, should extend over months. All ethmoid cells, as far as it is possible to reach them from the nose, should be cleaned out. The diseased sphenoid and the antrum should be opened and if possible cured. The second and equally important requirement is that the operation should be carried out as radically as possible, so that no fragment of diseased mucous membrane, no single ethmoid cell shall remain behind. This proposition I urged three years ago,[7] and was based on the fact that I had had no mortality and that my results were unusually good. I only too clearly recognize the fact that my experience has been limited, and although since then I have not changed my method or ideas, I am directly at variance with Hajek, who, as I said, influenced by his two unfortunate cases, now urges that the mucoperiosteal lining of the roof of the ethmoid labyrinth be allowed to remain, *even at the cost of the thoroughness of the operation.*

Hajek[8] even asserts that such an incomplete operation will have no influence on the final outcome of the case, or at any rate will not disturb the patient as long as sufficient drainage is afforded. With this view I cannot agree, and in three of my cases in which I was forced to reoperate, the findings were proof positive that ultimate recovery would have been impossible.

The very reasons which Hajek gives for considering this retention of pyogenic mucous membrane a protection would, if we can believe the findings of my autopsies *in vivo,* in all probability have led to future severe trouble. In fact, Gerber[3] has proved that many cases of uncomplicated frontal sinus disease have, as a result of a Killian operation, finally terminated fatally, and this to my mind because of the incompleteness of the operation.

Hajek draws his conclusions from a series of about forty cases, while my experience is based on about thirty. He holds with Gerber[3] that a large number of the fatal cases have their origin in an injury or a complete exposure of the roof of the ethmoid labyrinth and the lamina cribrosa. I do not believe in the protecting power of this diseased mucoperiosteal lining of the roof of the ethmoid labyrinth, which is supposed to act as a protection against intracranial complications, but that we must place our reliance from the very first on perfect drainage. Such drainage is only possible after the removal of the gauze at the end of forty-eight hours, by the use of negative pressure.

I maintain that in my twenty-eight cases in which a cure took place, in seven of them in from five to eight days after the operation, in twelve cases from ten to fourteen days after the operation, and in three cases in less than three weeks after the operation, the results could only be obtained, first and foremost, by the most radical and exact operation, and second, by the use of negative pressure during the after treatment to secure perfect drainage.

In those of my patients who were not absolutely cured, and on whom I reoperated, overlooked ethmoid cells were always at the bottom of the trouble, and the sad lesson was always forced on me that every time my lack of boldness or of a retention of too much of the processus frontalis, a miser's greed in sparing the mucous membrane of the nose, or a timidity in attacking the tiny cells deep down on the roof of the ethmoid labyrinth, resulted in a temporary failure.

In any case in which after operation the mucous membrane is seemingly dry, and even after repeated inspection carried out over a number of days shows a drop of pus by suction, the cure is not complete, but some vagrant ethmoid cell has been left behind which is the cause of the trouble and may necessitate months of expensive and nerve-racking treatment.

In one double-sided operation, in which the patient had complained for years of violent right-sided frontal headaches, a curious phenomenon was observed, the only thing of the kind I have ever had the opportunity of noticing. In making a preliminary examination by suction, it was noted that the physiologic limit for negative pressure was lower on the right side than the left.

The physiologic limit is a term I have used to designate the height of pressure which each patient can bear with comfort, or a point at which bleeding begins to take place from the mucous membrane of the nose. Although the physiologic limit for bleeding may vary with the two sides of the nose, depending on the pathologic conditions present, the limit for discomfort has always been about the same for the two sides. In this case, however, the patient complained of much pain coming on with 6 cm. less pressure on the right side than on the left.[9] As the patient expressed it, she felt as if her brain was being "drawn out." At the operation the angle between the floor and the roof of the ethmoid labyrinth was unusually narrow, perhaps 80 per cent. smaller than in the ordinary case. In removing the cells, a dehiscence of the roof was noted about 0.5 by 1 cm., through which the dura showed clear and glistening. There was no pulsation and it was difficult to make out at first whether I was dealing with dura or not. In spite of Hajek's warning, however, the roof was thoroughly cleaned off. Whether this dehiscence was operative, as some of the visitors present maintained, or whether it was preoperative, I could not determine. During the after-treatment, however, the same phenomenon was always observed; the right side was 5 to 6 cm. more sensitive than the left. After about six weeks the sensitiveness entirely disappeared.

This case teaches us two things: First, in all probability the dura on the roof of the ethmoid labyrinth is no more sensitive to infection than the dura on the roof of the tegmen tympani. Who would think of leaving a fragment of diseased mucous membrane in a radical mastoid operation because the tegmen was paper-thin? The dura is exposed in a large percentage of such cases and cerebral complications rarely follow. Second, this lowering of the physiologic limit for discomfort on the diseased side may lead to a method whereby we may suspect, preoperatively, a dehiscence of the bony wall.

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[4] Horn: Die Behandlung operierter Nebenhöhlen, Verhandl. d. Ver. deutsch. Laryngol., 1909.

[5] Horn: The After-Treatment of Operated Accessory Nasal Cavities, Ann. Otol., March, 1910.

[6] Horn: A Method for the Determination of Pus in Diseases of the Accessory Cavities of the Nose, California State Jour. Med., February, 1911.

[7] Walb and Horn: Ueber Saugbehandlung bei Erkrankungen der Nebenhölen der Nase, Ztschr. f. Ohrenh., xlii, No. 1.

[8] Hajek: Die Behandlung der Empyeme der Nasennebenhöhlen, Ztschr. f. Laryngol., 1910, ii, No. 5.

[9] The apparatus for determining negative pressure is fully described by me in the Ann. of Otol., March, 1910, and can be obtained from V. Mueller & Co., Chicago.

Before concluding, there are a number of minor points to which I wish to draw attention in passing, although I have nothing original to add in the matter.

The uselessness of the retention of a nasal mucous membrane flap has long ago been decided on. If I am not mistaken, Killian himself has given it up.[10] In my series I never attempted but twice to carry out this procedure and before the operation was completed I saw that during the subsequent dressings the flap would be apt to come loose and therefore snipped it off. I do however believe and my contention is borne out by at least one European observer, that the use of the negative pressure in the after-treatment seems to have a tendency to inhibit the formation of granulations around the drainage openings. At least I have never yet had to snare or burn away any exuberant granulations in my cases.

The question of the necessity of a primary suture of the external wounds is still an open one.[11] The more conservative operators, Hajek and Killian, contend that even when no intracranial complications are present, but when the pus is unusually foul and dangerous-looking, a secondary suture would be the safest plan. In all of my cases the wounds were closed with a primary suture with the exception of one in which I experimentally did a secondary suture. The cosmetic result was good, but not the perfect result that in the ordinary case I now consider a *sine qua non*. In the case already mentioned with the dehiscence, I did, with some misgivings, a primary suture, but I considered my drainage absolute, and the necessity of a perfect cosmetic result must be considered in the case of a young woman.

In my first few cases I took great pains to spare the attachment of the trochlearis.[12] Now I pay no attention to the matter and in my series had but one temporary diplopia which lasted less than a month. There are often series of small ethmoid cells which extend down almost to the foramen of the optic nerve and which are concealed unless a very free dissection of the orbital contents is made by first loosening the attachment of the trochlearis. In one of my reoperated patients, when I had taken the greatest pains to do a very radical operation, a feeling of pain behind the eye combined with the appearance of a few drops of yellow pus, shown only by suction, led to the discovery at the second operation of a single row of six to eight ethmoid cells filled with small polypoid masses, almost surrounding the upper half of the edge of the optic foramen.

In but two of my cases did I find it necessary to use paraffin to overcome the sinking of the supraorbital space. The frontal sinuses in both cases, as you can see by the illustrations, were exceedingly extensive and deep, extending almost to the hair line. In one, a perpendicular incision was necessary to thoroughly eradicate all the dead space. Very extensive paraffin injections brought about most satisfactory results.

In conclusion I wish to emphasize the fact that I look on the Killian operation as a very serious procedure; that the indications for its performance are narrowing instead of broadening; that it should never be undertaken without a thorough preliminary intranasal preparation carried out for weeks or even months before the operation; that if possible the diseased sphenoid and antrum should be previously healed.

My present operative indications are distinctly distasteful to my operative inclinations. Intracranial complications should of course all be operated by the external route. If in the other class, in which headaches and pus are the dominant factors, we cannot heal the lesion by intranasal methods, and if there are no sociologic contra-indications, we can allow the patient to stay under observation with a discharging sinus and some slight headaches.

209 Post Street.

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[10] Von Eicken: Erfahrungen mit der Killianschen stirnhöhlen Operation, 1 Internat. Otologic Kong., Vienna, 1908.

[11] Zarniko: Die Krankheiten der Nase, S. Karger, Berlin, 1910.

[12] Eschweiler: Arch. d'otol., October, 1904.

THE VARIOUS PATHOLOGIC CONDITIONS INVOLVING THE FRONTAL SINUS *

B. R. SHURLY, M.D.
DETROIT

Nature has provided a most elaborate series of air-spaces in her construction of the bony labyrinths of the head. This plan of animal engineering is a structural necessity in vertebrates of aerial locomotion (birds). It is a design of great comfort and utility to the more developed species that assume the more erect posture.

The frontal sinuses may be classified as a part of this general plan of human machinery that demand the qualities of lightness in the construction of the head with a maximum of protection to the skull-case with the properties of resonance and lubrication to the upper air-passages. The structural units of the body are marvelous in their response to the laws of use and disuse or supply and demand, and we find that the frontal sinuses develop and enlarge extensively at puberty. As the subject of this paper is diseased states of the frontal sinuses, it is unnecessary to dwell at length on details of anatomy, yet it should not be forgotten that certain unusual structural findings exert their anatomic influence on the pathology.

Cryer has pointed out to this Section many interesting conditions relating to the abnormal morphology of the frontal sinuses. The absence of sinuses, the presence of septa, wide variations in contour and dimensions, absence of bony walls, presence of ethmoid cells within the sinus, variations in thickness of the structural bone and anomalies of the frontonasal duct may be mentioned as a few of the anatomic discoveries that may influence the pathologic conditions, the surgical indications and therapy in this region.

The physiologic phenomena of the nasal passages are in close relationship to many pathologic conditions in the frontal sinuses. Hyperemia, intumescence, and hypertrophy of the mucosa and turbinates are frequent attendants or etiologic factors of sinus disease.

To discuss the problems of pathologic conditions involving the frontal sinus comprehensively it is necessary to establish several distinct classifications. We find immediately on investigation that the frontal sinus (as we should expect) shares with the other accessory cavities in a number of pathologic processes that are common to all.

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* Read in the Section on Laryngology, Otology and Rhinology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

It is only within the present century that frontal sinus disease has been recognized and operated on externally. In 1839, Dezeimeris, in 1859, Bonyer, and in 1872, Steiner contributed work of important pathologic value to this subject. It remained for Zuckerkandl to publish the most exhaustive and unequaled treatise on the accessory sinuses.

Disease of the frontal sinus may be grouped into six subclassifications: (1) acute catarrhal or suppurative; (2) chronic catarrhal or suppurative inflammation; (3) confined suppuration; (4) infectious conditions, as tuberculosis and syphilis; (5) mucocele; and (6) tumors, foreign bodies.

The pathologic processes that invade the frontal sinuses are those peculiar to mucous membranes in general and to the other accessory sinuses in particular. The problems of pathology in the region under consideration are modified by the anatomic confines of the bony walls and a small ostium for drainage or infection. Undoubtedly the most frequent pathologic condition of our north temperate zone involving the frontal sinus is the secondary catarrhal inflammation attending acute coryza. The process is usually one of extension. The sinus is protected from infection by its secretion falling through a comparatively long dependent canal. The acute inflammatory processes are frequently nothing more than a renewed bacteriologic activity of some old slumbering infection.

While unusual types of micro-organisms invade this frontal recess, the staphylococcus, streptococcus, pneumococcus and the influenza bacillus, are by far the most frequent invaders. The problems of inflammation within bony cavities, lined with mucous membrane, have much in common with like problems of inflammation elsewhere. The necessity for drainage is more important and requires alertness in diagnosis, with prompt attention to the surgical principles of drainage. Again, there are pathologic problems of the frontal sinus that closely simulate those of the mastoid region. In some cases acute frontal sinus abscess has broken down the bony walls, and even the anterior wall, within three days and this possibility must be borne in mind. Inflammation with hemorrhage and a closed nasal duct may develop especial pathologic conditions. The bloodclot may shrink and undergo fermentation. The activities of the gas-producing microorganism in turn may develop a sharp negative pressure similar to the middle-ear and mastoid phenomena. With this pathologic state, the aggravated symptoms of frontal pain or supra-orbital neuraligia may be developed, which pain or neuralgia is relieved by spontaneous or artificial drainage.

With these acute processes of inflammation may be associated pin-head or larger areas of necrosed bone attended by symptoms of pain. These are exceedingly difficult of diagnosis and have yielded to discovery through the findings of the *x*-ray. Given the fact of acute infection of the frontal sinus with the various types of microorganisms, the problems of pathology in general and inflammation in particular are decidedly influenced by several unknown factors, which we must endeavor to investigate in our cases. X may represent the unknown microbe; y may represent its virulence; z may represent the opsonic index of the individual host. These unknown factors of our algebraic problem may be determined approximately. The variety and virulence of the microbe, the resistance of the patient and the question of drainage, determine the extent, the character, the type, and the various phenomena of acute inflammation in this region; and we understand the pathology of the individual case, the more nearly we appreciate the life-history and habits of the infecting microbe.

The influence of the biochemistry of the blood and lymph and the general systemic condition of the patient must be constantly borne in mind. It is impossible to separate any special pathology of the frontal region from pathology in general. Suppurative and catarrhal conditions are closely related to systemic conditions such as the examthematous diseases of children.

In frontal suppuration it should be a routine procedure to obtain a culture and study the bacteriology on account of the valuable information that may be obtained in relation to the etiology, pathology, prognosis and treatment. It is not only difficult, but frequently impossible to draw the dividing line between acute, subacute, and chronic processes in this region. When the transition occurs, it is characterized by the growth of connective tissue. This may be attended by hypertrophy—general, local or scattered. It may be followed by cyst formation or polypi, or the development of osteomata. The infiltration stage with thickening of the mucosa may go on for months characterized by a mucous or seropurulent discharge with little discomfort to the patient.

The formation of cysts and polypi are quite frequent in the other accessory sinuses—especially the ethmoidal cells and antrum. Retention cysts arise many times as the result of contracting connective tissue thrown into the mucosa and choking the ducts of the mucous glands. Polypi are less common. When the chronic inflammatory processes continue and extend deeply involving the periosteum, and depositing inorganic salts in a meshwork of new cells and capillaries, we may have bony infiltration and the development of osteomata.

Chronic suppuration may be free or confined, depending on the patency of the ostium frontale. A macroscopic examination of the sinus reveals a thickened rough, soggy pyogenic lining membrane which is bathed with yellow and at times fetid pus. It is unusual to find the same pathologic picture associated with the anterior ethmoid cells or antrum. Suppuration may follow trauma.

Fistulas indicate necrosed sinus wall and occur most frequently at the upper internal angle of the orbit. The perforation is usually in the inferior wall of the sinus. When the anterior wall is perforated the point of selection is along the superciliary ridge. Eye clinics at Berlin report one fistula in 18,000, while in Vienna one fistula in 9,000 was found.

Among the more frequent infectious conditions that involve the frontal sinus may be mentioned influenza, tuberculosis, and syphilis. The former variety (influenza) is seen after the acute ravages of the winter grip epidemic have passed. The waves of acute infection subside, leaving colonies of activity in any or all of the accessory cavities. The frontal is frequently the cavity of selection.

Post-mortem examination in subjects who have died of tuberculosis has revealed the presence of tubercle bacilli in normal sinuses. The presence of this disease is rarely primary and shows the pathologic phenomena of tuberculosis of mucous membranes by extension. As nasal tuberculosis is rare, frontal sinus tuberculosis is exceedingly unusual and when present, exhibits no peculiar characteristics. The manifestations of syphilis are usually secondary to ulceration in neighboring tissues. An obscure form may be necrosis of the anterior wall. This condition came under my observation recently—a diagnosis could be made with the x-ray only, as all other methods failed to give any information whatever. Syphilitic processes in this region are deep-seated and invade the soft parts and bone with extensive destruction in the presence of mixed infection. Many of them are not benefited by ordinary antisyphilitic treatment.

Although sinus affections are quite common with general systemic infections, the frontal is less frequently involved than the other accessory cavities. In diphtheria the Klebs-Löffler bacillus may be found, and it may be infected with erysipelas, typhoid fever, variola, pneumonia, or cerebrospinal meningitis.

In addition to inflammatory and suppurative conditions, new growths may appear. Primary benign or malignant tumors, as fibroma, sarcoma, or carcinoma, are exceedingly rare. They involve this region as secondary growths by extension without any unusual change in their pathology. Epithelioma and sarcoma are the most frequent tumor formations involving the frontal sinus. A few cases of mucocele and pneumatocele are on record. Helly has reported nine of the latter. Farlow's case of mucocele with the characteristic "egg-shell crackle" illustrates the pathologic peculiarities of this condition. This tumor appears at the upper and inner angle of the orbital fossæ with a hard surface, slight bony irregularities and develops slowly.

The presence of foreign bodies in the frontal sinus is extremely rare. They occur, however, in both animate and inanimate varieties. A number of interesting cases due to maggots, larvæ and various worms and insects are reported. Bullets, shot, pieces of drainage-tube, broken instruments, constitute some of the inanimate objects recovered. The irritation of foreign bodies is usually followed by marked suppuration.

Modern research has not elaborated any recent remarkable discovery in the pathology of this region. It is necessary, however, that the therapy connected with the frontal sinus should be based on broad and just pathologic foundations. When we appreciate in full measure the value of its teachings the surgery of this region will be placed on the conservative basis where it belongs. The teachings of the ultraradical will be relegated to the realm of oblivion or the mountain of ancient surgical remains. The frontal sinus then, will be opened externally when it is absolutely and pathologically necessary.

If we are to be instrumental in relieving pathologic conditions of inflammatory type in the frontal sinus, this relief must not come through the efforts of surgery alone, but under the prophylactic guardianship of a method of treatment that will prevent and abort acute inflammation and the frequent common "head cold."

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ABSTRACT OF DISCUSSION

ON PAPERS BY DRS. SHURLY AND HORN

Dr. E. C. Sewall, San Francisco: My experience with Killian's operation has been limited to twelve cases, and my results have been largely similar to those of Dr. Horn. In my cases, in the beginning, I was somewhat disappointed in the after-results, as regards complete cessation of all secretion, largely due to the lack of proper drainage. This was true even when I felt at the time of operation that I had been particularly careful to get good drainage. Doing a Killian operation, to me, has always been like a stroke at golf: I always feel that if I had another chance at it I could do better. I feel that the operation is surgically correct. I congratulate Dr. Horn on his results. I am certainly very much interested in the use of suction, which in his cases prevented the formation of granulation tissue, which in my cases gave considerable trouble. In this connection I wish to call attention to a suction apparatus which I have introduced into surgery and which I have found of value in this work. I hope to show this apparatus to the Section. Dr. Horn speaks of fatalities being largely due to portions of pus not evacuated. Killian, during my four months with him, five years ago, had a death from osteomyelitis and seemed to look on this as a serious possibility in these cases. When I called again on him a few months ago, I found he was not closing nearly as many cases primarily as before. In my cases, perhaps I have operated too radically, in that I did not do the preliminary work Dr. Horn advocates. And I do not know that I agree with Dr. Horn in submitting the patient to tedious intranasal work on the ethmoid and sphenoid when one has concluded that the Killian operation is necessary. I have included the maxillary antrum in the operation. That may be too radical and in the future possibly I may retract from that position. But I have operated on both frontals, the ethmoids, the sphenoid and the maxillaries at the same sitting and have secured satisfactory results.

Dr. H. B. Graham, San Francisco: I want to congratulate Dr. Horn on the conservatism shown in his paper. I think the radicalism advocated by Jansen of Berlin is certainly not advocated by the majority of rhinologists in Europe to-day. I had the privilege of seeing many European operators work, and at the Budapest conference the tone was conservatism. Hajek and Killian are particularly conservative and I think the men most skilled in intranasal surgery will try every other method before they do a Killian operation. A great deal can be done by intranasal treatment and drainage. The introduction of suction has added a great aid to our drainage methods. The idea that bone dehiscences constitute an indication for the Killian operation is not true to-day. I have had one case in my own practice in which I had been treating the patient four or five months and who was gradually getting better under suction and drainage after operation on the ethmoids. One day I found my washings coming through on the opposite side and I thought I would have to do a Killian operation. But I kept on with the conservative treatment and the patient is now apparently well and has been so for four months. In Vienna I saw a great many patients who had been reoperated on, I am sorry to say, and I think in all there was a lack of technic in the primary operation. The assistants in the clinic were perfectly frank to acknowledge that portions of the mucous membrane had been overlooked.

In the conservative treatment we have a means that has not been mentioned here and that is the use of autogenous vaccination. We have observed at least one case in the Cooper clinic where we used the autogenous vaccine and reduced the infection from a polybacillary to a monobacillary infection. The patient is not cured. What will be the ultimate outcome I do not know, but I think it is of value to know that we can reduce the number of varieties of bacteria in these cases. If we can change a polybacterial pus to a monobacterial one there will be less danger of meningitis in the Killian operation.

Dr. C. F. Welty, San Francisco: When some of the large clinics report that they have ceased to do the Killian operation and a man says he has cured twenty-five consecutive patients, it starts us to thinking there is something wrong somewhere. I am inclined to believe that Dr. Horn's statements are correct, not because of the suction apparatus, but because of a more thorough operation than is usually done. The reason that the Killian operation is in disfavor to-day is because a large majority of the patients are not cured after that operation. If we adhere to the indications as established by Hajek and Killian at the last international congress, we are certainly not going to go ahead. The indications they gave then were threatening cerebral symptoms. It is self-evident that all such patients have to be operated on, regardless of whether they will recover entirely or not. I have operated on patients, with and without the use of Dr. Horn's suction apparatus, and they got well in three or four weeks. I have operated on other patients since and they have not done so well after a number of months. In the patients that do not get well I feel that the operation has not been sufficiently complete. I cannot believe that the suction apparatus can produce healing if you leave diseased tissue.

DR. SHERMAN VOORHEES, Elmira, N. Y.: Dr. Shurly spoke of a mucocele occurring in these cases and extending into the orbit, destroying the orbital wall. I have had two cases in which the eye-ball was displaced by mucocele and the thrush fungus was found in great numbers. Both patients were operated on by the Killian operation and recovered. Often we will find a deviated septum that should be corrected before the Killian operation is done. I have used for some time the suction apparatus, following the Killian operation and also the intranasal operation, and I can say with Dr. Horn that I think it is of very great use. Sometimes we defer for a long time operation by the Killian method. That is according to the case, to a great extent. I have had two cases in which perforation into the orbit took place following an acute infection of the sinus. In such a virulent case I think none of us would hesitate to operate early. Dr. Horn has emphasized the importance of getting good drainage. We should remember that the outer end of the sinus is lower than the curve in the orbital wall, so that it is necessary to take out the floor of the sinus clear across in order to secure good drainage. I have known some cases in which that was overlooked and the patients came to a second operation.

DR. J. F. BARNHILL, Indianapolis: There is a tendency to get away from radical work, but I think that tendency can be carried too far. There are patients who can be cured by intranasal treatment. On the other hand, no one will doubt that there are patients whom nobody will cure by any method of treatment. These cases are, as a rule, major surgical ones. Sometimes nothing short of applying all of the best surgical principles will effect a cure, and when we learn that this is true and apply such means, we will cure most of them, but there will still be some patients who will not be cured. Dr. Voorhees spoke of one such class of cases. Those of you who have had much of this work, know there are cases such as Dr. Voorhees referred to, in which you cannot overcome the dead spaces and get good drainage unless you have the patient stand on his head a good deal of the time. In such instances, Dr. Horn's suction apparatus may do some good, but I do not think that he believes it will cure all of them. A few patients will permit us to treat them a year or for years and then do radical work. If we do radical work, we must make it what it says it is, radical, and do it so that the operated field can be inspected afterward. We all know the freaks that occur in bone granulation. These often are strange. Sometimes even over night there may form granulations sufficient to hinder drainage and healing of the wound. One of the gentlemen has spoken of a patient who recovered in four weeks after operation. That seems to me almost incredible. I think he means that there was no discharge at the end of that time. He does not tell us what happened the next month or year, when there was perhaps an epidemic of influenza. The fact that a few of these patients die, should not hinder us from going on and doing our duty, any more than the death of a few patients in gynecology should hinder the gynecologists from doing good surgical work, for good drainage secured through careful surgical means is far less dangerous than no drainage. We should treat all patients so as actually to get good drainage. The laity and many practitioners do not recognize the difficulties with which we must contend in this work. To-day probably no work is more difficult than good sinus surgery.

DR. W. R. MURRAY, Minneapolis: I want to emphasize the value of the first paper. It is absolutely essential that we recognize the pathologic conditions that may exist in the frontal sinus before determining our line of treatment. I believe it is the experience of all of us that the indications for the Killian operation are considered less frequent to-day than a few years ago. Often conservative intranasal surgery will give relief in cases of chronic frontal sinusitis. However, the radical external operation has a very distinct place in surgery, and when the indications for such radical operation are present then I believe the Killian operation should be done and not a semi-radical operation. I agree with Dr. Horn that intranasal work should be exhausted before resorting to the external operation, and that intranasal treatment or operation should, if possible, precede the radical operation Unfortunately we cannot always keep the patient under observation and treatment sufficiently long to do this, especially in the case of out-of-town patients.

If I understood Dr. Horn correctly, he attributed the fatal cases he referred to to the presence of over-looked foci of infection in the frontal sinus or ethmoid cells. I should have some doubt as to whether that was the only explanation for the intracranial involvement. In these chronic empyemas the virulency of the microorganisms is usually low and following operation they may become much more virulent. This increased virulency, in connection with some existing pathway of infection, either physiologic or pathologic, which might be present between the sinuses and adjoining cavities, might explain the fatal results. That such communications do exist has been shown by numerous investigators, especially by Zuckerkandl and more recently by Onodi. Of course this is only a possibility and I do not know how we can determine when such conditions are present.

DR. FRANK L. DENNIS, Colorado Springs: For several years we nose and throat men have been using vaccines in sinus and ear affections. Recently, at Dr. G. B. Webb's suggestion, I have introduced the vaccine directly into the mucous membrane of the nose, the idea being that if we can, in the infection of any tissue, put the vaccine into tissue of the same embryologic origin, we may get better and quicker results. Unfortunately, I have not done sufficient of this work to come to a definite conclusion as to its value. However, I feel convinced that I am getting better results from the use of vaccine in this way than before by giving the vaccine subcutaneously.

DR. VICTOR F. LUCCHETTI, San Francisco: I think first of all, the intranasal methods should be exhausted before we proceed to radical work. After the middle turbinal is removed, I believe in many cases fluorescene is of value in washing out the sinus, giving an idea as to the condition of the sinus and also helps to effect a cure. Hydraulic suction is useful, with the use of the masseur of the Victor pump. No one has said anything about the Wassermann reaction. I recently treated a young lady with a bad sinusitis and an ill-smelling discharge, in whom the Wassermann reaction was positive, and she has recovered under the mixed treatment. I have used autogenous vaccine treatment in a number of cases, with benefit, but without a cure.

DR. J. R. FLETCHER, Chicago: Dr. Brem, of the Colon Hospital, Panama, informed me that in 300 autopsies on meningitis cases, some or all of the sinuses were the primary point of the pneumococcus infection. I think we should remember this, because it is not in the literature. The infection almost always extended through the blood-current to the meninges. In a few cases it extended through the ear.

DR. WILLIAM ELLERY BRIGGS, Sacramento, Cal.: Surgery of the nasal accessory sinuses is in its infancy. As a rule it has been far from radical. In fact, many of us avoid radical surgery in these cases until it can be postponed no longer. The results of radical work in this field have not been uniformly good enough to warrant those with little experience to undertake the radical operation on patients who can be made comfortable by less severe means. Those who have not large opportunities for experience would do best to send those patients who need extensive operations to some one who has had abundant chance to see this line of work.

I have seen Dr. Jansen of Berlin do a great deal of radical sinus surgery and he does this work more radically than any other operator that I know. I have seen him operate on the eight sinuses at one time. His flap operation for the frontal sinus is difficult but complete. Whether this will be the ultimate method of operating one can only guess. If such extensive operations are best it will be best to have fewer men doing them. Possibly the autogenous vaccines will accomplish what they have done in other fields of usefulness. If experience should demonstrate this hope to be a fact the radical operation may be rarely needed in the near future.

Dr. B. R. Shurly, Detroit: It is most important that we should give close attention to the acute suppurative processes in the nose. It is these processes that make the trouble later on. It is exceedingly important that every acute inflammation in the nose have as thorough treatment as possible. We must appreciate the difference between the staphylococcus, the streptococcus and the pneumococcus infections; and the difference between the various epidemics and in the virulence of the various strains of microorganisms, especially when the infections invade the accessory nasal sinuses.

Dr. Henry Horn, San Francisco: Dr. Sewall, in his discussion, brought out some points, which I could not cover in my paper because of lack of time. When I said the danger was in the cavities not well drained, I did not refer to osteomyelitic cases. Those have nothing to do with the operation, the infection seems to come as lightning out of a clear sky and kill your patient. The question whether to close the wound primarily or secondarily, depends largely on the personal equation. As to operating without preliminary treatment, of course, if it is not possible to treat patients, and unfortunately here in America that is often true, we may have to eliminate the preliminary treatment. The doctor said he had difficulty with the granulations around the intranasal drainage wound. That is one reason why the preliminary intranasal work is so necessary. Intranasal work should be continued for months, if possible, before the external operation. This allows the epithelial cells to get a start in the region of the future drainage opening and possibly explains why my results were so good and healing was so rapid. When I said a few of them were healed in seven or eight days after the operation, I know that seems an anatomic impossibility, but it is a practical possibility. In seven days after operation in some cases pus cannot be sucked out of the sinuses, and if that condition continues a year or so one is justified in considering the patient healed. What the condition is inside we do not know; that is a pathologic problem on which I am working now. What I have found is that in some reoperative cases the frontal cavity is shut off by connective tissue from the postorbital space and has no communication with the latter. I think probably in some cases the whole cavity is filled up with organized connective tissue. Dr. Sewall spoke of his apparatus. There are dozens of suction apparatus on the market. I only spoke of measured negative pressure, which was first introduced by me into rhinology, and the report published in Germany a few years ago. It is simply measuring the dose. You cannot have any appreciation of the dose of negative pressure unless you measure it with a manometer of some sort. Suction alone will never cure a chronic condition. That is out of the question.

EFFECT OF TUBERCLE PRODUCTS ON EPITHELIUM *

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That tubercle bacilli or their products have a stimulating effect on epithelial structures we have convinced ourselves. This was quite clearly shown in our work during 1909 and the experiments early in 1910 abundantly corroborated it. We could only be sure of the effects on the epithelium in bile-ducts and bronchi, however, while in mamma and skin epithelium the appearances were far from regular. The work has therefore turned toward establishing conditions which could produce definite continuing results. The results in regard to the organs used are given here.

I. RABBIT EAR

For the purpose of stimulating the growth of epithelium on the ear, two methods were used, one of injecting the material as closely beneath the epidermis as possible, another by rubbing wax derived from tubercle bacilli into an abraded surface on the ear skin. The results seen under the microscope are detailed below.

Ear of Rabbit 57.—Thirteen injections 0.2 mg. dead tubercle bacillus under the skin of ear. Epithelium is essentially the same in the two ears where there are no hair follicles; where hair follicles are present, the epithelium seems a little thicker, but there is no evidence of active multiplication. Very few mitoses can be found; the connective tissue immediately below the epithelium is slightly more cellular in the treated than the untreated ear.

Ear of Rabbit 61.—Fourteen injections 0.5 mg. tubercle bacillus wax under skin of ear. Treated ear: There are many irregularities in the surface epithelium, both in the thickness and in its penetration; there does not seem to be any increase in hair follicle epithelium; connective tissue is rich, well organized and acellular with the exception of one or two minor round-cell collections in vicinity of blood-vessels.

Rabbit 62.—Crude wax molten by gentle heat and rubbed twenty-seven times in six months on an abraded surface on the ear. The other ear was abraded in a similar manner by the same instrument but no wax was applied. After removing a piece of the skin of each ear, the microscopic examination revealed nothing abnormal about the abraded untreated ear skin. The only noteworthy change in the treated ear skin was in the great number of glands and hair follicles throwing off dry epidermal plates, and the collections of crust of dried plates on the surface are certainly thicker than in the control animal.

II. GUINEA-PIG'S MAMMA AND RABBIT'S MAMMA

We had two of our original rabbits left and made use of them for the reason that they had already received irritating dosage in the mammary gland and we felt that they would be much more likely to show epithelial alterations than new animals. We accordingly took them from the males, treated them for a short time and put them with males again, and for the third time treated them with injections. Notwithstanding this severe treatment true stimulation of epithelium to adenomatous or carcinomatous growth did not result. Here are the notes made from the microscopic sections of one. The other was very similar.

Rabbit 58.—Injected six times dead degreased tubercle bacilli; put with male; injected five times; put with male, injected nine times. Did not conceive; mamma dissected off. The injected gland shows less activity than the untreated. A larger part of section surface of untreated gland shows active milk production. The lining of the ducts and skin surface shows greater tendency to drying and flattening in the treated glands. The epithelium is the same in both.

Guinea-pigs were treated with dead degreased tubercle bacilli, dead tubercle bacilli and living tubercle bacillus extract. Two guinea-pigs whose young had died were also treated with wax emulsion. The wax formed a ball mass in the gland and was encapsulated, thus having no effect on the epithelium.

The treatment given the animals injected with the first-named substances consisted of injection, then mating, and again injections. One (631) conceived and the mammary gland was removed as soon as the young could be separated from the mother.

Guinea-Pig 631.—Treated with dead tubercle bacilli three times, then mated, injected three times. Treated mamma presented low-grade but definite interstitial mammitis with distortion of acini and some attempts at reduplication of epithelial lining similar to that in adenoma; untreated mamma normal.

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* Commonwealth of Pennsylvania Department of Health Laboratories.

Guinea-Pig 536.—Injected three times with dead tubercle bacilli, then mated, then twelve injections. Animal had an abscess in mamma between last two injections which were three weeks apart. Died from enteritis. Very little difference microscopically between the two glands. In the treated one the connective tissue is probably greater in amount than in the untreated: the gland lumina are wider and much secretion fills them up. No epithelium cell change.

Guinea-Pig 637.—Injected three times tubercle bacillus extract, mated, injected seven times. Died of enteritis. The only noteworthy difference between treated and healthy glands lies in the abundance of desquamated epithelial cells in the gland lumina of the former.

III AND IV. BRONCHIOLES AND HEPATIC BILE-DUCTS

The two structures may be considered together because they are influenced seemingly in the same manner. In last year's report we described how the bile-ducts became prominent, tortuous and apparently increased. We are now convinced that an actual increase in bile-ducts occurs and we believe that they arise from liver columns.

We have one section in which a bile-duct can be traced from liver column cells with their homogeneous pale purple staining protoplasm and uniformly blue nearly solid nucleus, into a well-formed seemingly old bile-duct with epithelium having deep blue vesicular nucleus and rarefied pale blue protoplasm. The exact point at which this newly-made duct assumes its basal membrane cannot be precisely determined but it occurs before the transition of the cell staining properties is complete. As discussed in a previous paragraph, connective tissue increase is quite pronounced in these livers and this new growth is most marked in the fields containing the newly-formed bile-ducts. The connective tissue does not penetrate the lobules farther than where the changes of liver columns indicate alterations of cells preceding the form of duct epithelium. The bile-ducts are very tortuous, and indeed so conspicuously ramified and distorted that the picture of cystic adenoma is closely simulated. There may be also papillary outgrowths in lateral section, but one cannot say yet that these are more than ramifications cut across.

In the bronchioles the changes are fundamentally the same. The epithelium lining shows, however, many more changes correspondingly than do the bronchioles as tubes. One cannot say that they are increased in number, but they are undoubtedly abnormally tortuous. The epithelium is reduplicated both regularly and irregularly. The glands of the larger bronchioles show changes suggestive of carcinoma simplex, although by search one can find a well-formed complete basal membrane.

Within the bronchiolar lumen, one may see papillomatous overgrowth of the epithelium, usually but not always accompanied by connective tissue stalks. Many desquamated whole and disorganized epithelial cells lie in the lumen. Similar pictures, but to a very mild degree, are seen in the large bronchi.

COMMENT

The results of our experiments with the purpose of stimulating superficial epithelium overgrowth by products of the tubercle bacillus have not been satisfactory.

At most there is but little overgrowth and that is best seen on the free surface where the irritant was applied locally. Here the tubercle bacillus products have behaved as most other mild irritants, producing a low-grade keratosis. On the other hand, in the internal viscera of animals injected subcutaneously or intraperitoneally with the tubercle product, a very decided influence is exerted on bile-ducts and bronchiolar epithelium, which can be explained only on the basis of some attraction relationship between epithelium and the tubercle bacillus. The following conditions, however, must be strongly emphasized. Animals receiving tubercle bacillus products into the peritoneum or beneath the skin show these changes clearly enough to be followed. Animals given living tubercle bacilli, either after or before the product, show the changes in liver and lung very well and in much farther advanced condition than when living tubercle bacilli are not given. Control animals receiving only living tubercle bacilli present changes to about the same degree as seen in animals receiving only injections of products. The deduction is therefore justifiable that a combination of living tubercle bacilli and a tuberclin is necessary to the great effect on epithelium. This is not true for endothelium, which seems to undergo rapidly the changes usual in unrestrained tuberculomata or in caseous tuberculosis.

We might hazard a conclusion that this helps to explain the benefit of tuberculin injections on tuberculosis of organs rich in epithelium and the rather less promising outlook for caseous lesions where endothelium predominates.

A THEORY FOR THE PATHOLOGIC PHYSIOLOGY INVOLVED IN DISEASE OF THE THYROID GLAND AND ITS THERAPEUTIC APPLICATION

EXPERIMENTAL STUDIES *

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A SUMMARY OF WHAT IS KNOWN ABOUT THE PHYSIOLOGY OF THE THYROID

It is now accepted as reasonably certain that the thyroid discharges into the circulation a secretion which is of importance for many organs and tissues; that this exerts its effects directly on some and indirectly on others, possibly through the nervous system; that the formation of this secretion is the only function of the thyroid and that it has no other constructive or destructive attributes; that the physiologic activity of the thyroid secretion is dependent on an iodized protein or proteins and that it seems roughly proportionate in activity to its iodin content; that this secretion seems not to be destroyed during its utilization but to be reabsorbed by the thyroid with little or no loss; this fact in itself suggests the possibility of auto-activation of the gland.

It also seems to have been demonstrated that iodin starvation may produce simple goiter which can be interpreted as a compensatory hypertrophy in the attempt to supply a normally active thyroid product in the presence of a deficient ingestion of the essential iodin.

The thyroid secretion has some connection with oxidation, for by thyroid feeding in myxedema or cretinism the consumption of oxygen can be markedly increased. Likewise the amount of heat given off from the body can be correspondingly augmented. Conversely, experimental thyroidectomy leads to a diminution in the absorption of oxygen. This secretion also has to do with both carbohydrate and nitrogenous metabolism and cer-

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* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911. *The article is here abbreviated because of its length, but it appears in full in the Transactions of the Section and in the author's reprints.*

tain recent experiments[1] seem to connect nitrogenous metabolism in the liver directly with the thyroid. There has been much controversy about the iodin content of this gland in health and disease, but the most recent and correct determinations[2] seem to prove that the normal human organ contains on an average 0.3 mg. of iodin per gram of gland substance. In the thyroid of Graves' disease, however, this is decreased to 0.2 mg. or 0.1 mg. or even less, and the less the amount of iodin per gram of gland substance, as a general rule, the more severe are the symptoms. Nevertheless, if before the gland comes to analysis, the patient has been fed iodin in any form the quantity of this element within the gland may be greatly in excess of the normal.

That which may be called the physiologic chemistry of the thyroid is extremely interesting and important: if a number of fresh and normal human thyroids are ground and suspended in salt solution, to which a little thymol is added to prevent putrefaction, and stored in a refrigerator for several days and the coarser material strained off through gauze or a filter, an opalescent or cloudy filtrate is obtained. By the addition to this of some dilute acetic acid at ice-box temperature, there results a small amount of precipitate, which is a nucleoproteid. After removal of this product and half saturation of the filtrate with ammonium sulphate there can be obtained a much more abundant precipitate, which is a globulin. In a similar treatment of the pathologic thyroid of Graves' disease, which is far richer in epithelium and poorer in colloid than the normal gland, the nucleoproteid element is obtained in much greater quantity and the globulin in much less or scarcely at all. The nucleoproteid product can therefore be supposed to represent the epithelial portion of the gland and the globulin, the colloid material. The cross-section of a thyroid taken from a subject of acute toxemic hyperthyroidism presents a solid yellowish surface very different from that of the normal gland with its sponge-like areas of small depressions filled with a mucoid substance. Histologically the vesicles of the diseased organ are more or less filled with epithelium, either fully formed or disintegrating, and with cellular detritus; but there is little or no colloid. Chemically, as remarked before, this gland contains an abundance of nucleoproteid while the globulin is scanty or absent.

Somewhat analogous chemical and microscopic differences exist between the normal thyroids of the pig and sheep. The latter animals have much more globulin or colloid than nucleoproteid, while the pig gland, which is very rich in epithelium, yields a large nucleoproteid precipitate and comparatively little globulin. As regards the iodin content of these two substances, the nucleoproteid seems to contain more than the globulin, but this element is present in both products. If, however, the dissolved and suspended thyroid proteids, instead of being treated at ice-box temperature, are first warmed to 40 C. and then treated with 0.5 per cent. acetic acid, a much larger precipitate results than in the cold process, and the filtrate yields little or nothing on the addition of ammonium sulphate. The laboratory workers therefore doubt that there can be any difference in the physiologic activity between the nucleoproteid and globulin constituents of the thyroid, as their chief chemical difference appears to lie in the temperature at which they are precipitated. Nevertheless, there seem to be very marked physiologic differences shown by these two substances. If 10 to 15 minims of a 1 to 1,000 solution of the human thyroid nucleoproteid is injected subcutaneously into a normal individual at intervals of a couple of hours it invariably and soon produces tachycardia, accelerated respiration, cutaneous flushing, slight elevation of temperature with a subjective feeling of heat, sweating, tremor, insomnia and a sensation of "nervousness." The amount required to excite these symptoms varies considerably in different persons, but by increasing the dosage the symptoms can always be obtained and gastro-intestinal disturbances with diarrhea may be added. The symptoms produced by the injection of the thyroid nucleoproteid therefore correspond very closely with those which accompany overactivity of the gland or Graves' disease.

It should be noted that the ammonium sulphate precipitate or the globulin cannot be obtained entirely free from some admixture with the nucleoproteid material. Now when thyroid globulin solution is injected subcutaneously into a normal individual in the same dosage as the nucleoproteid, there seems to be little or no effect except a feeling of well-being, and a very large amount has to be administered and for a much longer time, to obtain the characteristic signs of thyroidism. But in certain abnormal individuals whose condition can be traced directly or indirectly to some disorder of the thyroid, this (impure) thyroid globulin may act as a dissipator of melancholic depression, as a means of slowing the pulse and respiration, of improving the resistance to infection, of checking diarrhea, as a cholagogue, a diuretic, an emmenagogue, or a sexual excitant. In general, it will often increase the quantity of the hemoglobin and the red cells better and more rapidly than iron or arsenic; it seems to be a far better tonic than the "bitters" or their alkaloids; it is more specific in gout and rheumatism than colchicum or salicylic acid. In fact, the enthusiastic endorsements of thyroid feeding found in literature for every imaginable ailment would be far more abundant if this thyroid globulin were more generally known and obtainable. Its best results are shown in hypodermatic administration; but for this purpose it is necessary to employ the material made from the human gland, as that from an unrelated animal like the sheep, if continued for any length of time, excites in man the formation of antibody, which neutralizes the foreign proteid.

The college laboratory, under the direction of Dr. Beebe,[3] has made tablets chiefly from sheep and pig thyroids which contain the combined proteids precipitated by acetic acid at room temperature from one or the other gland and standardized according to their content of iodized protein. The dosage is from 1/100 to 1/10 of a grain frequently repeated. The sheep thyroid contains far more globulin or colloid than that of the pig and seems more generally useful. The combined thyroid proteids in the tablet made from the pig gland is often essential, however, in certain conditions which are accompanied by a blood-pressure above 130 or 140 mm. of Hg but is much more likely than the sheep thyroid tablet to excite the characteristic signs of thyroidism; and in addition there seems not infrequently to be produced a peculiar subjective feeling of melancholy.

In passing it should be noted that the usual commercial thyroid tablets are made from the desiccated sheep's gland. As the thyroid rapidly autolyzes and as the globulin or colloid suffers most in this process, it is probable that the useful and active ingredient or ingredients may be extremely variable in amount and contain mostly if not entirely only the nucleoproteid element. This thyroid nucleoproteid, which with more or less reason is assumed to be the chief active ingredient in the commercial thyroid tablet and in the laboratory tablet of the pig thyroid combined proteids (and can be prepared approximately pure) is extremely valuable in cases of thyroid disease presenting more of the symptoms of myxedema than of Graves' disease but with a blood-pressure above 140 mm. of Hg. In thyroid disease with high rather than normal or subnormal blood-pressure the thyroid globulin or the sheep thyroid combined proteids often aggravate some of the symptoms.

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[1] Schryver and personal communication from S. P. Beebe.

[2] Riggs: Jour. Am. Chem. Soc., May, 1910, xxxii, No. 5.

[3] The methods of fractional separation of the thyroid components are described fully in the Am. Jour. of Pharm., February, 1911, by S. P. Beebe.

To recapitulate briefly the physiology of what appear to be two dissimilar though closely related substances in the thyroid secretion, it seems that the nucleoproteid affects chiefly if not solely the sympathetic nervous system, while the globulin or colloid affects so many organs and tissues that for the purposes of the hypothesis it can be called universally activating. An analogy for this double or complex secretion can be found in that of the pancreas, and the comparison may lead to less distrust of the findings detailed above.

THE ANTITHYROID SERUM

Before proceeding further it is necessary to refer to the antithyroid serum which led to the development of the theory about to be offered for the physiology of the thyroid. It is made by injecting sheep or rabbits at intervals of a few days with the combined nucleoproteid and globulin obtained from the human thyroid gland. After about six weeks of this treatment the blood is drawn from the carotid, the serum separated and tested for "activity" and stored for use in sealed glass tubes in a dosage of about 1 c.c. Its specificity and the reasons for it have been given in previous communications[4] and need not be repeated here. This serum seems as specific and beneficial in its effects on the symptoms of acute toxemic thyroidism as is the antitoxin on those of diphtheria; but the convalescence is protracted, and after the subsidence of the acute symptoms the antithyroid serum must not be "pushed" unduly. In acute exacerbations of chronic thyroidism it must be used with caution and not beyond the period at which it seems beneficial. In the usual chronic case of exophthalmic goiter, except when the blood-pressure is high or above 150 mm. of Hg, it is slowly beneficial and often curative when administered at intervals of two or three days and continued for weeks or months. It cannot with safety be administered oftener than once in twenty-four hours, and if at any time at the end of two or three days it has intensified rather than alleviated symptoms it should be stopped.

THE RELATIONSHIP OF THE CHROMAFFIN SYSTEM TO OTHER ORGANS AND ITS CONNECTION WITH DISEASES OF THE THYROID

The chromaffin system is an extremely interesting organ or group of organs, apparently belonging to both the nervous and secretory systems in that it is composed of certain cells distinguished from others by a characteristic staining reaction with the salts of chromium. These cells originate from the same embryonic source as the sympathetic nerves, namely, the neural ectoderm, and are found in larger or smaller collections in juxtaposition with these nerves all the way from the base of the skull to the bottom of the pelvis. The largest individual groups of them exist in the medullary portion of the adrenal glands, from which their active ingredient or product, epinephrin, is derived. This seems limited in its effects to the terminal filaments of the sympathetic nerves. Although the aggregations of the chromaffin cells which produce the epinephrin do not correspond exactly to secreting glandular tissue, they must nevertheless be regarded as having a secretory function. Furthermore, some recent experiments by Cannon and others indicate quantitative variations in the blood from time to time of the adrenal or chromaffin system product and hence it is reasonable to infer the possibility of functional derangements of this system which correspond to what is known to exist in the case of the thyroid. The sympathetic nerves, it should be recalled, supply only unstriped muscular fibers and secretory epithelium, of which by far the greatest amount is concerned with digestive and nutritional processes. Epinephrin may thus activate or inhibit the purely nervous impulses which, in addition to the chemical stimuli conveyed through the circulation, regulate the interaction of the different organs and especially the gastro-intestinal tract, the pancreas and liver. The most abundant and easily demonstrated nerve-supply of the thyroid and pancreas is from the sympathetic.

The (pig) adrenal gland can be treated like the thyroid and the nucleoproteid material thus obtained differs from epinephrin in having no local vasoconstrictor effect, while it lowers blood-pressure instead of raising it in certain atypical conditions accompanied by thyroid disease. Those cases in which this product is extremely beneficial or essential have goiter and more of the signs of myxedema than of Graves' disease, although there may be a greater or less degree of tachycardia, a blood-pressure above 140 mm. of Hg, cutaneous pigmentation, and gastro-intestinal disturbance in the form of diarrhea or recurring attacks of nausea, vomiting and diarrhea. If there is in addition headache, a combination of adrenal nucleoproteid and thyroid nucleoproteid will generally prove most helpful.

THE SYMPTOMS REFERABLE TO THE CHROMAFFIN SYSTEM WHICH MAY INDICATE ITS PARTICIPATION AND FUNCTIONAL DISEASE IN DISORDERS OF THE THYROID

The secreting portion of this system, or the chromaffin cells, are generally believed to produce epinephin or some closely allied substance or substances which apparently vary in amount in the circulation according to the bodily needs. The secretory portion of this mechanism must be subject to the same general laws as other organs, and hence must suffer from functional and structural disorders. The general picture furnished by Addison's disease supplies a very indefinite and uncertain standard but is the only one clinically recognized. The quantitative test for epinephrin by the instillation of a drop of blood or serum into a freshly excised frog's eye and noting the consequent degree of contraction or dilatation of the pupil, does not seem satisfactory. The destruction of the medullary portion of the adrenals apparently leads to a peculiar bronzing or pigmentation of the skin and mucous membranes, most marked about the nipples and genitals and in the mouth and on the hands and face; the muscular weakness is marked; the blood-pressure is low and the pulse rapid. Anorexia, nausea, vomiting and diarrhea are common. The most constant result of electrical stimulation of the adrenals in dogs is a pronounced muscular tremor, extreme tachycardia, accelerated respiration and a rise of between 1 and 4 F.

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[4] Beebe, S. P.: Preparation of a Serum for the Treatment of Exophthalmic Goiter, The Journal A. M. A., Feb. 17, 1906, p. 487.

in temperature within half an hour, and a marked rise in blood-pressure which seems more pronounced than that due to fear or pain. In Graves' disease so many of the symptoms are traceable to stimulation of the sympathetic that it formerly was described as a neurosis of this system. The cutaneous flushing, the sweating, and the tachycardia are the most distinctive. In the absence of other known causes, an elevation or depression of the blood-pressure and cutaneous pigmentation and perhaps the converse, or extreme pallor, must also be traced to the sympathetic of chromaffin system. It was stated above that the thyroid nucleoproteid seemed limited in its effects to stimulation of this system and that the thyroid globulin in the same dosage showed none of this peculiar activation. Hence when there is a demonstrable excess of nucleoproteid in a given thyroid secretion it is reasonable to ascribe the origin of the symptoms referable to the sympathetic, ultimately to the thyroid, and in the absence of such an excess of thyroid nucleoproteid they should be traceable directly to a functional disorder of the chromaffin system.

The presence of a goiter will often supply the clue for unraveling many obscure conditions.

THE RELATIONS OF THE PANCREAS TO THE THYROID, LIVER AND CHROMAFFIN SYSTEM

The digestive action of the pancreas needs no review, and it remains only to recall that there is a reasonable certainty of the relationship existing between the hydrochloric acid of the stomach, the secretin or prosecretin of the duodenum, the pancreas, its trypsinogen and the enterokinase of the small intestine. From the results of the experiments outlined above[5] it seems probable that at least some of the intestinal secretion of the pancreas is absorbed into the portal system and being thus carried to the liver exerts an important direct effect on the chemical processes in this organ. It is also reasonably certain that the pancreas produces an internal secretion, probably from the islands of Langerhans, which has a close connection with the adrenals and sympathetic nervous system. This has been demonstrated with more or less certainty in the great number of experiments dealing with glycosuria, particularly those of Opie, who extirpated all but a small portion of the pancreas and found no glycosuria until this remnant was removed. The remnant contained only the islands of Langerhans.

The investigations on glycosuria have also shown that the thyroid is concerned in the process through some apparently inhibitive action of the pancreatic by the thyroid secretion. Furthermore, all the evidence at hand strongly suggests that the closely interdependent thyroid, pancreas and chromaffin systems consummate their relations in the liver. Hence it is extremely probable that disease cannot exist in any part of this group without affecting more than one of its components. These components may be and probably are connected with other organs similarly associated in function, and therefore, therapeutics directed at the thyroid alone may be even harmful if the thyroid is not the primary source of the difficulties. Apparently goiter or symptoms referable to the thyroid may occasionally be entirely secondary to other disturbances, and the superficial deformity seems often to be only a hypertrophy which is compensatory to a failure elsewhere. A pancreas nucleoproteid can be prepared from the ground-up gland suspended in salt solution like that from the thyroid and adrenals. Clinically, it is a valuable and sometimes an essential adjuvant in the treatment, particularly in some cases of myxedema which are accompanied by headache, insomnia, constipation and persistent asthenia with loss of flesh and strength. The dosage is from about ⅛ to 1 grain, frequently repeated and generally used with the combined proteids of the sheep thyroid.

In addition the commercial enzymes or extracts of the pancreas, especially trypsin, administered by rectum or by mouth, are often useful as sedatives in all stages of Graves' disease.

THE SYMPTOMS WHICH MAY INDICATE PARTICIPATION OF THE PANCREAS IN THYROID DISEASE

The symptoms referable to functional or structural disease of the pancreas are notoriously unreliable. Nevertheless, as extreme fatigue impairs the functional activity of all organs, it is fair, under these conditions, to infer a decrease in the pancreatic product. The insomnia and constipation which are so constant in *incipient or early* hyperthyroidism, can be regularly relieved by the administration, either by mouth or by rectum, of one or another preparation from the pancreas, and hence these vague signs may be those of pancreatic insufficiency. The Cammidge reaction and tests of the stools in my hands have proved negative in disorders of the thyroid in which the pancreas may be supposed to participate.

Without the coexistence of thyroid symptoms or a perceptible goiter it would be clinically impossible to recognize the cases in which pancreas feeding can give the greatest benefit.

THE COMPARISON OF SYMPTOMS IN DIFFERENT FORMS AND STAGES OF THYROID DISEASE TO SHOW THE VARIATIONS IN THEIR PROBABLE ORIGIN AND CONSEQUENTLY IN THE THERAPEUTICS REQUIRED

In the development of the hypothesis and for therapeutic purposes, it is necessary to contrast the symptoms of Graves' disease, or hyperthyroidism, and those of myxedema, or hypothyroidism. The indications of defective or deficient thyroid globulin can then be pointed out. An excess of nucleoproteid in the thyroid secretion seems always to be shown by stimulation of the sympathetic nervous system which is revealed chiefly by tachycardia and cutaneous vasomotor irritability.

SMYPTOMS[6]

Hyperthyroidism with excess of thyroid globulin:	*Hypothyroidism with defective or deficient thyroid globulin:*
1 History of fatigue and slow onset.	1. The same.
2. More common in adolescence than in middle life and in women.	2. More common during and after middle life and in women.
3. Cutaneous flushing; tachycardia; manifest overaction of [illegible] vic. [illegible] by [illegible] 120-130.	3. Flushed skin over malar prominences only, marked pallor elsewhere; slow pulse; blood-pressure usually below 120.
4. Mental instability and excitability rather than mental alertness; tremor; restlessness; quick, jerky movements *of extremities*; insomnia.	4. Mentality sluggish, rather than dull; headache; insomnia with changes to somnolence only in terminal stages; slow movements.
5. Muscular weakness and inability to withstand ordinary fatigue.	5. The same.
6. Exophthalmos generally present in some degree, and the more marked it is the worse is the prognosis. It is often absent in the early stages.	6. No exophthalmos except in those who have passed through a preceding Graves' disease. In place of it there is a characteristic puffiness and edema around the eyelids and in the supraclavicular regions and on the back of neck and below the knees.

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[5] Omitted for lack of space here.

[6] Beebe and Rogers: Arch. Int. Med., November, 1908.

SYMPTOMS—Continued

Hyperthyroidism with excess of thyroid globulin:	*Hypothyroidism with defective or deficient thyroid globulin:*
7. Goiter of variable size and consistency. Its vascularity and density give some indication of the relative importance of the thyroid in the general disturbance; goiter is often imperceptible in the early stages.	7. Goiter is common, but by its consistency and absence of vascularity suggests a functionless organ.
8. Appetite abnormally good and out of proportion to the evident poor nutrition, movements regular or diarrheic. Thirst constant.	8. Appetite poor; apparently good nutrition. Constipation. No thirst.
9. Skin moist with a subjective feeling of heat.	9. Skin dry and scaly; subjective feeling of cold.
10. Temperature 99 to 101.	10. Temperature subnormal.
11. Blood shows relative lymphocytosis, anemia slight or absent.	11. Negative, anemia regularly.
12. Menstruation irregular or absent.	12. Regular but scanty, occasionally excessive.
13. Urine in nitrogen partition shows excess of creatin and diminished creatinin.	13. Negative; albumin sometimes present.

As typical Graves' disease may terminate in a typical myxedema there are in the intermediate stages many examples of the coexistence of both of these conditions. Clinically these states are remediable, not by measures designed to suppress the thyroid, like the antithyroid serum and partial thyroidectomy, but by feeding with thyroid globulin or the combined sheep thyroid proteids, which contain an excess of this substance. The inference is plain, therefore, that there is a deficient or defective colloid. The chief symptoms which indicate the necessity are headache, especially in the morning, anorexia, constipation and a dry skin, especially over the elbows and knees, and edema about the ankles.

THE HYPOTHESIS

Normally the thyroid, through a small but important part of its secretion, is supposed to activate specifically the chromaffin or sympathetic nervous system, and through the larger portion of its product every other organ and tissue in the body. The word "activate" is used intentionally in a general sense to signify some constant unknown chemical reaction which is of importance to the functional activity of every part of the body, as it is difficult to conceive of a secretion having one effect on this organ and another on that. And the thyroid evidently is concerned in so many metabolic processes that its influence cannot be excluded from any. It follows, therefore, that conditions which call for great functional activity in any particular organ or group of organs must require some corresponding increase in the functional activity of the thyroid and often force it to undergo a compensatory hypertrophy. This may result more easily if the gland possesses some congenital or acquired defect which makes its output less efficacious than it should be. The goiters which occur in young girls at puberty or in women during pregnancy or at the menopause can thus be explained as hypertrophies of a possibly weak organ to compensate for an unusual demand on the thyroid secretion, while the so-called endemic goiter found in certain localities may be the expression of an attempt on the part of the thyroid to compensate for a defect in itself or elsewhere which is dependent on a starvation or superabundance in some element essential in the metabolism of one or more organs. This means that all goiters, except the true tumors of the thyroid, though they may originate in many different ways from defective metabolism in the thyroid itself or any other functionally associated organ, have essentially the same cause in an increase or attempted increase in thyroid function. The later degenerative changes which may supervene in the gland are side-issues, although they may be of great importance, in that these changes, by destruction of the portion of the gland still capable of normal function, may promote the enlargement and degeneration of this part, or by pressure on adjacent structures, chiefly the trachea, so interfere with general nutrition as to have the same effect as the primary fault.

The increase of function implies a consequent fatigue, the effects of which have been studied chiefly by electrical stimulation of the salivary glands. In these there is at first a greatly increased and approximately normal flow of secretion according to the nerve employed, but it soon becomes watery and of poor quality and finally ceases altogether and cannot be reexcited until a considerable period of rest has been allowed. All the clinical evidence strongly suggests fatigue in one form or another as the exciting cause of hyperthyroidism. The production of a normal secretion or colloid material, of course, depends on the vitality or biochemical capacity of the thyroid epithelium; and, as iodin is an essential ingredient of its product, the biochemical relationship of the epithelium with this element should suffer according to the degree of fatigue imposed on the gland. In the fractional separation of the thyroid proteids the pathologic gland of hyperthyroidism, as remarked before, yields a far more abundant acetic acid precipitate than the normal organ and much less of an ammonium sulphate precipitate. The quantities vary within certain limits, depending somewhat on the temperature and concentration of the solutions employed, but in general the quantity of the acetic acid precipitate is in direct proportion to the severity of the hyperthyroid symptoms, and the most prominent of these are traceable to the chromaffin or sympathetic nervous system. Qualitative variations in the product of the thyroid of Graves' disease, though probable from analogy and from the microchemical appearances of the gland, cannot be demonstrated as well as can these quantitative changes in its product. It is assumed, therefore, with more or less reason, that in Graves' disease fatigue damages the biochemical relationship of the epithelium with iodin and in an ineffective attempt to metabolize this element properly, the epithelium proliferates too rapidly and disintegrates, and, instead of a colloid containing the normal proportions of iodized proteids, there results one in which there is an excess of one or more elements and a deficiency of others. Specifically there seems to be an excess of one, designated here as a nucleoproteid, which is believed to activate only the chromaffin system, and in the most severe forms of the disease a deficiency of the globulin component of the secretion although in the milder forms of the disorder this also may be more or less abundant, but possibly of inferior quality. In consequence of this excess of nucleoproteid the whole sympathetic nervous system which supplies secreting, glandular epithelium is unduly stimulated and one or more vicious circles are immediately started, which perpetuate the process. Auto-activation of the thyroid through its sympathetic innervation is suggested by the injurious effects of (commercial) thyroid feeding in active hyperthyroidism, as well as by the benefits obtainable from surgical interference. At the same time the globulin portion of the secretion which is supposed to be universally activating may return in the circulation to its source, and, when superabundant, as in the milder forms of hyperthyroidism, may stimulate the epithelium to a pathologic extent. The similar activation of the sympathetic, by the thyroid nucleoproteid and probable fatigue which follows this stimulation of the important organs concerned in digestive processes, should impair the general nutrition. and with it that of the thyroid, and thus add to its injury and abnormal activity. If the supposed compensatory hypertrophy and overactivity of the thyroid was started by a primary defect, for example. in the chromaffin system or the pancreas, as is conceivable and seems probable from clinical experiences with certain cases, attempts at relief of the thyroid fatigue and its consequent excessive stimulation of the sympathetic are always logical though seldom curative. Patients with glycosuria and comparatively mild signs of Graves' disease or with symptomatic Addison's disease and moderate thyroidism are suggested as belonging in this class. But feeding thyroid to a diabetic individual with the object of relieving the apparent strain on the thyroid is dangerous.

The existence of hyperthyroidism without any perceptible goiter seems to indicate that the gland is so defective or so fatigued as to be unable to hypertrophy, and in general, such cases will be found to have a worse prognosis than those in which a considerable enlargement has occurred before the constitutional manifestations appear, and when recovery from the thyroidism takes place, sooner or later signs of myxedema commonly follow.

In myxedema it is believed that a fatigue of the thyroid has been brought about in some one of the same several ways which are apparently the exciting cause of simple goiter and of hyperthyroidism. But the epithelium in its attempt to metabolize iodin, instead of multiplying, is unequal to any effort at compensation and atrophies. The not infrequent termination of simple hypertrophy of the thyroid and of Graves' disease in myxedema and the injurious effects of fatigue in general on the disorder, as well as the therapeutic experience of thyroid feeding, particularly with the active ingredients of the gland in their normal proportions, which may be supposed to relieve the strain on the organ, all unite to indicate a glandular fatigue as the cause of myxedema. When symptoms of Graves' disease and myxedema coexist, as often happens, it seems probable that certain portions of the thyroid are more injuriously affected by fatigue than others, and, while one area attempts to compensate for the excessive demands on the biochemical capacity of the epithelium by its proliferation, another is incapable of response and the epithelium atrophies. Or, inasmuch as the symptoms of Graves' disease more frequently precede those of myxedema, the latter is simply the expression of the terminal stages of the glandular fatigue and becomes manifest in the epithelium serially in the order of its individual vitality.

THERAPEUTICS

This hypothesis, based on fatigue of the whole organism, and especially on that of the components particularly concerned in general nutritional processes, and on the consequent variations in the quality and quantity of the products of these components, supplies a rational foundation on which to formulate measures designed either to check a pathologically overactive thyroid or to aid a defective one.

The primary requisite is rest for the gland, and that for sufficient time to allow its epithelium to regain its ability to metabolize iodin properly. To obtain this the superabundant thyroid nucleoproteid, and probably the thyroid globulin, must be cut down, not only to relieve the thyroid of the constant auto-activation, but to check the abnormal stimulation through the sympathetic of the thoracic and abdominal organs. While this is being accomplished, the presumable strain on the thyroid, whose secretion is supposed to be in constant and universal demand, must be relieved by feeding, preferably with the combined sheep thyroid proteids, which contains a preponderance of globulin, in a dosage of approximately from 1/100 to 1/10 grain frequently repeated. The probability of auto-activation of the gland must be borne in mind and the thyroid feeding kept constantly just below the point at which it intensifies the symptoms.

In addition attention should be given to all associated errors, especially in the gastro-intestinal tract, in order that the nutrition, irrespective of the hypothetical functional disorders of the pancreas and adrenals, may be improved, and thus by improving the general nutrition improve the nutrition and the functional capacity of the thyroid. Appropriate "organ therapy" ineffective as it often must be from our ignorance of its mechanism, seems theoretically best.

Patients with thyroidism who show a blood-pressure above 140 mm. of Hg and some signs of myxedema, especially headache, insomnia, constipation, a dry skin and asthenia, generally are more benefited by feeding with the combined pig thyroid proteids or the commercial tablets made from the desiccated gland, both of which contain a preponderance of the nucleoproteid element, than by the administration of thyroid globulin or the combined sheep thyroid proteids. Or the adrenal nucleoproteid, alone or combined with the thyroid nucleoproteid, may prove most satisfactory, especially if there is diarrhea and much cutaneous pigmentation and the symptoms directly referable to thyroid activity are not marked.

One or another form of pancreas feeding seems usually a necessity in myxedema and is generally beneficial in thyroidism although occasional instances of intensification of symptoms may occur in typical Graves' disease.

As remarked before, the antithyroid serum is almost as specific in cases of acute toxemic thyroidism as is the antitoxin for diphtheria. Theoretically at least, by its cytotoxic element it checks or inhibits the abnormal proliferation of the epithelium and by its antiglobulin neutralizes the colloid. But after the subsidence of the acute symptoms it should not be pushed, as it may damage the already weakened gland. Rest and supporting therapy are more often indicated.

The serum should be used with more caution in the frequent acute exacerbations of a chronic thyroidism. It is exceedingly valuable in a crisis, but a gland which may be supposed to be almost devitalized although dangerously overactive, can withstand but little interference.

The operation of ligation and division of the blood-vessels and nerves of the thyroid at favorable opportunities is both theoretically and practically indicated, as it insures rest for the gland by cutting off not only auto-activation, but all stimuli. The operation has not received as much attention as it should because the two inferior thyroid arteries are usually not disturbed and are often larger and so more important than the superior. All four vessels with their accompanying nerves and the superior thyroid veins (there are no veins accompanying the inferior arteries) can be cut under local anesthesia and without appreciable risk, provided not more than two are cut at one sitting.

Partial thyroidectomy in exophthalmic goiter apparently cures by removing at once the excess of abnormal secretion and so allowing the remaining portion of the gland to rest and regain its ability to metabolize iodin. But it will invariably fail to cure when undertaken in a symmetrically diseased gland and unless the convalescence is most carefully guarded. To be successful the portion of the gland which is allowed to remain must possess excellent vitality and show some approach to normal structure; otherwise the patient is left with only half a gland which is even less able to withstand fatigue than the whole organ was originally.

Thyroidectomy is essential, however, in cases of localized or partial thyroid disease in which the diseased tissue, not only by constant auto-activation of the whole gland by the secretion from its abnormal portion, but by pressure on the approximately normal portion of the gland by the diseased part so damages it that complete degeneration may follow. Furthermore, pressure on surrounding structures, especially the trachea, may so interfere with general vitality that this alone renders operation imperative. At the same time in the presence of dyspnea from goiter, operation will benefit or cure any co-existing thyroidism through improvement in the general, constitutional nutrition, which in turn benefits the thyroid and enables it to regain its ability to metabolize iodin properly.

But radical operation should be undertaken with far more caution than is usually the case and should be followed for a long time by thyroid feeding, preferably with the combined sheep thyroid proteids, to relieve the strain on the remaining portion of the thyroid and enable it to undergo the necessary compensatory hypertrophy.

Rest is as essential in the successful management of hypothyroidism as it is in hyperthyroidism. But the treatment of myxedema, especially in some of its atypical aspects, is far from being as simple a matter as seems usually believed. The ordinary commercial thyroid tablets, when given in sufficient amount to relieve some of the symptoms, will often excite the characteristic signs of thyroidism apparently by auto-activation of the gland through its sympathetic nerve-supply. This results in an exaggeration of the fatigue and in a worse condition than the myxedema. The combined thyroid proteids of the sheep gland, with their abundance of the globulin element, are to a large extent free from this disadvantage, but even these may fail to prove satisfactory. If there are indications of probable pancreatic deficiency in persistent headache, insomnia and constipation, it will generally be found that the addition of one or another pancreatic preparation will be successful. Or if there is a high blood-pressure with headache and occasional or constant diarrhea and cutaneous pigmentation or extreme pallor without noticeable anemia, the adrenal nucleoproteid, alone or in combination with the thyroid nucleoproteid, is often most beneficial. There are some cases, however, in which nothing seems capable of affording benefit except a solution given hypodermatically of the thyroid proteids obtained from the human gland.

The simple hypertrophies of the thyroid which are most common in young people, especially girls, are, of course, to be regarded as a protective rather than a pathologic phenomenon; except that the hypertrophy is compensatory to some deficiency in the thyroid itself or the organs associated with it, and as fatigue is a part of the process, rest is essential in the treatment. In addition, every care must be expended to recognize and remedy all nutritional errors. But these hypertrophies carry with them the ever-existing dangers of thyroidism, and should, therefore, be regarded with concern and seldom or never dismissed as of trifling importance. Nor, on the other hand, should they be subjected to radical thyroidectomy, which ruthlessly destroys the attempted compensation and often does irreparable damage.

102 East Thirtieth Street.

FACTORS INFLUENCING THE SAFETY OF OPERATION FOR GOITER *

MARTIN B. TINKER, S.B., M.D.
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No form of treatment for goiter has stood the test of years as has surgery since 1885, when Kocher reported the first considerable number of operations. Numerous patients treated for years by drugs, serums and other measures have later sought relief in surgery, and the number of enlightened internists who, like Osler, refer their patients for operation after three months' unavailing medical treatment is rapidly increasing. A further increase in the amount of goiter surgery will depend on our success in convincing the general practitioner and the patient of the safety of operation. A study of my recent methods with no mortality in 167 consecutive cases in comparison with earlier work, which was much less successful, may offer some suggestions to those interested in this subject.

EARLY OPERATION FOR SAFETY

As in many pathologic conditions, the safety of the patient may depend in large part on the early recognition and appropriate treatment of the disease by the general practitioner, and if this is unsuccessful, refering patients early for operation. If the physical condition is fairly good, the risk of surgery is slight. On the other hand, with delay there is danger of development of hyperthyroidism; of a dilated heart with irregular and intermittent pulse; a wrecked nervous system; eyes permanently bulged; growth of an intrathoracic goiter until emphysema has developed. No surgeon can operate with entire safety in such cases. The safety of the patient is in the hands of the internist who first sees and advises him.

PRELIMINARY STUDY OF DOUBTFUL CASES

The general physical examination is of greater importance than in most borderline conditions, and for the safety of the patient, it should be thorough and comprehensive. In our preliminary investigation, we have not merely the question of diagnosis of the disease with definite certainty that operation is indicated as soon as the diagnosis is established. A number of doubtful cases are entitled to further trial of medical treatment. With another group, the safety of our patient depends on deferring surgical treatment: a patient who may be greatly benefited by a suitable operation after a week or a month's proper preparatory treatment, might very readily succumb to an immediate radical operation. A third group of patients are best suited for the many-stage operation. In a fourth group of cases, immediate partial thyroidectomy may be advised with entire safety.

A decision as to what can be done with greatest safety should not be based on any single factor, for example, a study of the blood, but on the entire clinical

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* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

picture. Wilson and several other recent observers have questioned the value of blood-findings in goiter. The blood has been examined in the majority of my own cases by competent laboratory men, a considerable number of them from the laboratory of Dr. S. H. Burnett of Cornell University, whose book on the blood will be familiar to most workers in this line. The results have been entirely confirmatory of Kocher's statements, and my experience leads me to consider the preliminary blood examination of great value in determining what our course should be in the advanced exophthalmic cases. In nearly moribund cases, lymphocytosis may well be absent because the patient's power of reaction is destroyed. After operation, I have found in a number of examinations that the blood-picture again becomes normal.

The use of the *x*-ray as a curative measure has gained relatively few adherents and as a preliminary treatment is no longer advocated. In diagnosis it may prove an important aid, however. There can be no question about the possibility of outlining the position of many intrathoracic goiters by the *x*-ray. It may readily add greatly to the safety of operation to know exactly the location of some of the difficult growths. In connection with the *x*-ray diagnosis it is interesting to note that Garre of Bonn and other German workers believe that enlargement of the thymus has an important influence in the development of exophthalmic goiter, and Schultze has been able to outline the thymus in eighteen out of twenty cases with the fluoroscope.

The preliminary study is much more valuable when several workers, experienced from observation of a large series of cases, compare their findings. The internist who has examined a considerable number of cases preliminary to operation and who has kept himself informed as to the outcome in these cases; the laboratory man who makes the blood examination, which should include differential count and coagulation time as well; also examination of the urine; and the surgeon who sees most of the actual conditions inside the neck, should, for the safety of the patient, compare their findings. A single general physical examination is not always adequate to give an idea as to the safety of operation.

THE FATIGUE TEST

The character of the pulse, blood-pressure, heart's action, even the differential blood-findings and conditions of the urine may vary greatly at different times and under different conditions. Examination of a patient who has been kept at perfect rest for days or weeks and whose heart's action is relatively quiet and regular, may give an erroneous impression as to the safety of operation. On the other hand, a patient coming from a distance, fatigued and nervously distressed by a long journey, strange surroundings and what is regarded as an important consultation, may easily give the impression of a far worse operative risk than is actually the case. The exertion of going up stairs somewhat rapidly will give a better idea as to how the circulation will behave on the operating table in some cases. In other cases the exercise should be far less active; and in some it is evident that no extra exertion would be safe. After taking a somewhat long and careful history or after exciting conversation an idea may be gained of nervous and mental condition. Those not equal to an extra fatigue are obviously unfitted for radical, if for any, surgery; those reactng poorly are equal only to slight operations. Such tests of the effects of slight fatigue will often show that the patient is less fit for operation than at first appears.

The safety of operation, if after careful preliminary study immediate operation is decided on, is influenced by many of the factors under consideration before any surgical operation: the skill and experience of the surgeon, the care as to aseptic and antiseptic preparation; the choice of anesthesia to be used, etc.

ANESTHESIA

Probably a large proportion of the patients could be safely operated on by an experienced surgeon under almost any form of anesthesia, but to save the patients whose cases are critical some discrimination is necessary. Kocher for many years has used local anesthesia as a routine method with general ether anesthesia in a few selected cases. Mayo uses local anesthesia for some excisions, for ligations in toxic cases, and ether by the drop method as a routine, but so light an anesthesia that the patient frequently struggles and sometimes *protests. Crile uses local anesthesia in combination* with scopolamin and morphin hypodermically and nitrous oxid inhalation. Ochsner prefers to put the patient well under ether before beginning the skin incision and then completes the operation without further anesthesia. An increasing number use local anesthesia in selected cases. Practically all experienced men who use general anesthesia really only partially anesthetize their patients. The majority of operators still have a favorite general anesthesia which they employ in a favorite way (which varies anywhere from the open-drop method to breathing in and out of a closed bag), and this anesthesia and method they use in every case.

That such undiscriminating use of general anesthesia in goiter has resulted in many needless deaths, can scarcely be questioned. The angulation and compression of the trachea which is unavoidable with many growths, the rise in blood-pressure greatly increasing hemorrhage, the not infrequent degeneration of parenchymatous organs, the profound toxemia in the advanced exophthalmic cases—all of these factors certainly contra-indicate general anesthesia in many cases. The fact that the experienced men mentioned use such very light anesthesia or partial anesthesia really concedes the risk of general anesthesia. The fact that at least one-third of the goiter operations can be performed without any serious discomfort under proper methods of local anesthesia, and the number of obvious advantages in this mode of procedure, lead me to prefer it as a routine. Not only is there no interference with respiration in deeply located growths and less danger in toxic cases, but in all cases the hemorrhage is greatly reduced and the danger of injuring the recurrent laryngeal nerve is almost entirely obviated. I have not found it necessary to tie or strap my patients to the operating table as some do who prefer partial anesthesia. Many patients, even those who make considerable complaint, are really deeply in scopolamin-morphin sleep and do not later remember anything of the operation. It is frequently necessary to shout loudly to them to get a reply when working near the recurrent laryngeal nerve. Kocher has operated on over 600 consecutive simple goiters under local anesthesia without loss of life. I am not aware that so large a number of operations has ever been performed under general anesthesia without loss of life.

Crile's work seems to show that nitrous oxid-oxygen is the safest of the general anesthesia methods. In perfectly simple cases in which it is evident that general anesthesia would be relatively free from risk, I now give my patients the choice of nitrous oxid by the Gatch method or local anesthesia, though always expressing my preference for the local method. In very young or nervous patients, I also frequently use nitrous oxid. In quite a number of cases, it is of advantage to use local anesthesia for the major part of the operation, giving nitrous oxid gas at those stages in which there is discomfort from digging out very deeply located or adherent growths. If any general anesthesia is to be used, the necessity for care and experience is evident. With the local and gas anesthesia, so little gas is given, and over so short a time in most cases, that it adds slightly if any to the risk.

Control of hemorrhage was one of the bugbears of thyroid surgery in earlier days. While this is well managed in our best clinics, the essentials deserve mention, for nothing is more important to safe thyroid surgery. Picking up all bleeding points, as is necessary for accurate anatomical dissection, so that the field may not be obscured by smearing with blood, reduces hemorrhage to a minimum. In case of important bleeding, packing with gauze while the surgeon goes to another part of the field temporarily, usually makes it easy to secure small vessels later. The half-sitting posture at present used by practically all who are doing any considerable number of goiter operations greatly reduces bleeding, specially venous hemorrhage. Dislocating the gland from its bed, thus giving ready access to the deeper blood-supply early in the operation, is a great advantage in most cases. The rise in blood-pressure incident to the use of ether or nitrous oxid greatly increases hemorrhage, while the dryer and cleaner field under local anesthesia makes it easier to immediately secure the main arterial and venous trunks. This greatly increased ease in the control of hemorrhage is one of the greatest advantages of the use of local anesthesia.

ASEPTIC AND ANTISEPTIC METHODS

Perfect wound healing, desirable in all surgery, is specially important for the safety of goiter surgery, for these toxic hyperthyroid patients show very little resistance to infection. Iodin being readily absorbed by the skin (aside from its relative inertness as an antiseptic) is contraindicated in skin disinfection for the reason that there is already too much thyreoiodin in the circulation. The development of exophthalmic symptoms from local use of iodin painted on the skin or applied as an ointment has recently been mentioned.[1] For the same reasons iodin catgut should be used sparingly in toxic cases. When gauze is used in packing the wound in the stage operation, plain gauze has proved entirely satisfactory. Iodoform gauze would certainly seem contra-indicated because of the iodin often set free from it. The use of Harrington's solution or other strong antiseptics to swab out the wound, with the idea that absorption of thyroid secretion is thereby lessened, has now been discarded by its originator.

ANATOMY

Familiarity not only with the normal but with at least the most common anomalies is highly important for safeguarding important function as well as life. Anatomic structures entering into every goiter operation, familiar to all workers in this field, but seldom requiring consideration in other operations of general surgery, are the platysma muscle with its influence in producing an invisible, or if neglected, an ugly scar; the superior cervical nerves, which if thoroughly infiltrated with anesthetic solution give freedom from pain in the entire superficial dissection of the neck; the descendens hypoglossi nerve (formerly descendens noni), the motor nerve-supply of the sterno- and omohyoid muscles and the thyrohyoid muscles. The relations of the very common intrathoracic goiters to the pleura and the innominate and subclavian vessels and to the deep sympathetic, vagus and phrenic nerves may be of vital importance to the safety of our patient. Probably every experienced worker in this field has met troublesome hemorrhage from tearing off branches of these deep vessel trunks and disturbances of breathing from tugging on the respiratory nerves. Upward prolongations and deposits of masses of thyroid tissue in the region of the base of the tongue, the territory of the thyroglossal duct in the embryo, while not as common as intrathoracic goiter, is not infrequently met in my experience (*5 per cent. of my first series of 100 and 2* per cent. of later series). The importance of the relations of the recurrent laryngeal nerve and the parathyroids has called forth a number of interesting papers. Probably the importance of injuring the parathyroids has been somewhat exaggerated, but if the thyroid is stripped from its capsule along the inner and posterior surface, the danger of injury must be slight. Saving the posterior capsule also safeguards the recurrent laryngeal nerve.

TEAM WORK

Team-work is as important for surgery as for any college crew or football team. No surgeon, however skilful, can do certain difficult operations to advantage without skilled assistance. Good team-work may easily make the difference between death or recovery in operations for desperate goiter. The essential members of the team, starting from the surgeon, are the assistant, operating-room nurse and the anesthetist, if general anesthesia is given. The surgeon who operates with an assistant, nurse and anesthetist of his own choosing, selected not on the basis of competitive examination but on tried fitness, has the decided advantage over the surgeon working with a team constantly changing personnel or with no team at all.

Great things could undoubtedly be accomplished for the progress of surgery in this country by the establishment of long-term surgical and medical resident services and more or less permanent assistantships in more of our leading hospitals, instead of the present system of short-term internships with the resulting horde of half-trained and ambitious men who come out to get their surgical experience at the expense of their patients. The long-term resident plan in Europe has been at the foundation of much progressive and efficient clinical work; it gives the trained team-work necessary to the highest success in much besides goiter surgery.

THE MANY-STAGE OPERATION

The situation in goiter surgery is quite different from that in surgery in many parts of the body. In the treatment of cancer of the stomach, it would be impossible to divide our operation into stages, opening the abdomen at one time, ligating a few important vessels at another and completing the operation at a third stage. Fortunately for our success, this is readily possible in the surgical treatment of goiter. What I have on several occasions termed the many-stage operation, seems to me a most important factor of safety in the surgical treatment of exophthalmic goiter. Many years ago, Kocher advised preliminary ligation and others have followed his example. I was not aware that the surgical treatment of goiter had been divided into several minor stages at different times, varying from a few days to several weeks until I used this method, over three and a half years ago. During the past three years, I have operated in many desperate cases with ultimate satisfactory recovery. Many had hearts dilated to the axilla; at the beginning many were extremely anemic; nearly all of these had abumin and casts in the urine; persistent cough and diarrhea were present with a few; in several the heart's action was irregular, intermittent and feeble. All of these patients were treated by preliminary rest, tonic and hygienic measures. The operation itself was divided into many stages; in some, first, ligation of the superior thyroid on the least affected side; second, ligation of the artery on the side of greatest enlargement. Further treatment depends on the improvement after preliminary rest and ligation. In some the gland can be removed at once. In others the gland is simply exposed and the wound packed with sterile gauze. In these cases of worst risk, the fourth stage consists in removing the gland and again packing with gauze, and closing the wound at a fifth stage. The number of stages should be made as few as possible, but it is always better to keep within the limits of safety than to do too much. How far it is safe to go can be determined only by careful preliminary study of the case and a good deal of experience. It is certain that only a few patients in the most desperate condition are so ill that they cannot safely undergo a short skin incision and ligation of a superior thyroid vessel. This accomplished, the skin flap can be reflected in a few minutes, exposing the gland. If the sternohyoid and thyroid muscles are left undivided, no very troublesome adhesions are formed, after preliminary ligation. This is an improvement over my technic as reported a year ago when I was accustomed to divide the muscles and expose the gland. Sometimes after such division of the muscles when the patient's condition seemed to indicate considerable delay before completing the operation, adhesions became dense and troublesome. In several cases, I have left the gauze packed in place for a week or more before attempting closure as a fifth stage. In all cases the importance of a prolonged rest-cure is urged on the patients. They are given to understand that this is just as much a part of the treatment as the operation itself and unless they are willing to follow advice until a cure is obtained, operation has been refused. That many patients otherwise doomed to certain death can be rescued by the stage operation, I am thoroughly convinced. In my opinion, the two most important factors concerning the safety of the operation itself are the use of local anesthesia in the desperate cases and the many-stage operation; doing a little and getting out; carefully estimating what the patient is able to stand.

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[1] Kocher: Brit. Med. Jour., 1910, ii, 931.

AUTHOR'S RESULTS

During the past eighteen months of my work at Ithaca and at Clifton Springs, Dr. Howard L. Prince, my associate, and I have performed 167 consecutive operations for exophthalmic goiter without loss of life (105 excisions and 62 ligations and partial operations). These were cases with unmistakable symptoms and it is, I believe, the largest number of operations for exophthalmic goiter yet reported without fatality. The cases have not been selected, the only patients refused operation being those in a desperate state who died medical deaths without surgical interference, in from twelve hours to three weeks from the time when they were seen and advised not to undergo operation. The results have come, I believe, more from the methods adopted, cooperative study of the probable resistance of each patient, and attention to many details, than from any special operative skill. That a later equal number of operations, including as many desperate cases, would result as fortunately is doubtful, but I believe the risks from operation itself are slight and mostly accidental. Kocher has shown from experience in about 5,000 operations, and several of his followers in series of several hundred cases, that the mortality rate need not exceed a small fraction of 1 per cent. in simple goiter. Personal experience convinces me that with attention to the details mentioned a 1 per cent. mortality (far less than for medical treatment in similar cases) is well within the range of possibility in exophthalmic goiter. This degree of safety is equaled in few other conditions of equal gravity.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ROGERS AND TINKER

Dr. A. J. Ochsner, Chicago: Until recently our views regarding exophthalmic goiter have been based on a rather crude conception of hyperthyroidism, which we have received from Moebius. What this hyperthyroidism in itself represents we do not know, although the work that Dr. Rogers is doing will undoubtedly explain the elements of this condition. After we have Dr. Roger's analysis and that of many others who are working in this direction, our conception will undoubtedly be clear. Whether this can happen in the immediate future remains to be seen. There are many most acute, active and industrious observers who are working in this field.

Up to the present time we find all of the tissues of the body burdened with this hyperthyroid poison. It is a condition very much like poisoning with venom, which you can see pass over the patient. Occasionally a patient shows definite periods of poisoning. A period of excitement will be followed by an increase in the thyroid circulation, and within a few hours this patient will be almost overcome by the presence in his circulation of this substance which Dr. Rogers has partly analyzed, and which he will undoubtedly analyze completely.

So far as we were concerned up to the present time it was possible in some instances to reduce this hyperthyroidism by supplying the most favorable possible conditions of hygiene, rest and absence of excitement, and especial forms of nourishment. In other cases it was possible to prevent the formation of this substance by mechanically obstructing the blood-supply. In severe cases this was the first thing to do, to reduce as much as possible the blood-supply by ligating one or two or even three of the superior and inferior thyroid arteries and veins, so that the gland would have less material out of which to produce this poisonous substance. The next step was to remove a portion of the secreting glands, if we could determine what portion caused this hypersecretion, and if it seemed from the general condition of the patient that this could be done with safety. When we know more about the character of this secretion then we may be able to approach it from an entirely different side.

As regards the subject considered by Dr. Tinker, I would say that almost all of us who have operated in a large number of these cases considered our success to be due to this, that or the other feature, and after a while we dropped each of these features and our patients recovered precisely as rapidly and with precisely the same lack of danger as they did when we considered those the important elements in our success. There was a time when, following Kocher's method, almost everyone considered local anesthesia as the only safe means of performing this operation. There are several elements in the use of local anesthesia which are exceedingly valuable, namely, in the first place, you are compelled to pay closer attention to your operation when the patient is awake than when he is asleep. It is not possible to sit and think while you are trying to make out what to do. Again you must do the operation, if it is performed under local anesthesia, with the least possible amount of traumatism. I believe that any surgeon who tends to be violent in his operative procedures should operate under local anesthesia, because the patient will not submit to a violent operation, and the surgeon will thus be prevented from doing harm. In my own clinic I have repeatedly operated under local anesthesia, but only rarely during the past four or five years, because experience has shown that this does not increase the safety. The method that I have found safe and satisfactory consists in giving the patient ¼ gr. morphin hypodermically, and 1/100 gr. atropin one-half hour before the anesthesia is given. The patient is then thoroughly anesthetized with ether by the drop method, placing the patient in a horizontal position until fully anesthetized and then elevating the head by placing the patient in the inverted Trendelenburg position at an angle of 45 degrees, causing an anemia of the brain, which lasts throughout the operation. The atropin prevents the accumulation of mucus in the larynx and that does away, virtually, with any possibility of pneumonia. So that these patients do not have pneumonia after the use of the anesthetic. The morphin prevents the sensitiveness and reduces the amount of anesthetic required.

The heart is improved by the use of ether. I have never yet seen a case in which the heart was not better after the anesthetic than before; and being under the influence of this morphin for half an hour before the anesthetic is begun, the patient goes under the anesthetic without the slightest excitement. Thus we make use of the principle which our distinguished President brought out some years ago.

DR. JOHN ROGERS, New York: I wish to call attention to the comparative simplicity of these phenomena. They may all be referred to the thyroid alone or to the thyroid in connection with the associated glands. I must warn against operating on patients indiscriminately. Thyroidism can often be relieved by feeding substances not found in the thyroid. These preparations to which I have referred, which cannot be obtained commercially now, the Cornell Medical College will supply to you on request. There are many times when the use of the commercial thyroid is injurious; in fact, in the majority of cases it is injurious, on account of the chemical composition of the substance, as it does not contain all the normal ingredients of the gland.

In spite of what Dr. Ochsner has said, I must strongly advise against the use of ether. It is very easy under local anesthesia to make whatever division of vessels is necessary, or under nitrous oxid to remove whatever part of the thyroid you desire.

DR. MARTIN B. TINKER, Ithaca, N. Y.: I have for many years championed the use of local anesthesia for this work and for much other surgery. A final decision as to its value may safely be left to those men who have had surgical experience, and who will take the trouble to see the work done properly under local anesthesia and compare it with the work done under general anesthesia. Not one, but many men have been converted to the use of local anesthesia in these cases after seeing it properly employed.

I have had experience in doing the work and seeing it done under both methods; not that I have had a great deal of personal experience with ether, but I had to give it in my early experience for others. If any of you see the relative simplicity of the local anesthesia method, the comfort and the safety of your patients, many of them desperate cases, and are not convinced, then I have nothing further to say.

Protozoa.—Verworn in 1888 made the statement that protozoa seem to have been especially adapted by nature for the purposes of the physiologist, for here, in the single cell, are performed all of the functions which higher animals perform. —Calkins in *Science.*

THE PHENOLSULPHONEPHTHALEIN TEST FOR ESTIMATING RENAL FUNCTION *

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INTRODUCTION

In July, 1910,[1] we presented our original communication on the results obtained on our experimental and clinical studies of the functional activity of the kidneys by means of phenolsulphonephthalein. Some additional data were presented in subsequent papers.[2] The present communication is a summary of our experience with the test during the past two years,[3] and deals particularly with its value in relation to nephritis.

Phenolsulphonephthalein,[4] which was first prepared by Remsen, is a bright red crystalline powder somewhat soluble in water and alcohol, but readily soluble in the presence of alkalies. The drug, as determined by Abel and Rowntree, is non-toxic, excreted with extraordinary rapidity, and appearing in the urine normally within a few minutes of injection. In alkaline solution a brilliant red color is produced, which is ideally adapted for quantitative colorimetric estimations.

TECHNIC

Twenty minutes to half an hour before administering the test, the patient is given 300 to 400 c.c. of water in order to insure free urinary secretion, otherwise delayed time of appearance may be due to lack of secretion.

Under aseptic precautions a catheter is introduced into the bladder, and the bladder completely emptied. Noting the time, 1 c.c. of a carefully prepared solution of the phenolsulphonephthalein containing 6 mg. to the cubic centimeter is accurately administered subcutaneously, intramuscularly or intravenously by means of an accurately graduated syringe. (We have used the Record 2 c.c. syringe, which is graduated in fifths of a cubic centimeter.)

The urine is allowed to drain into a test-tube in which has been placed a drop of 25 per cent. sodium hydroxid solution, and the time of the appearance of the first faint pinkish tinge is noted.

In patients without urinary obstruction, the catheter is withdrawn at the time of the appearance of the drug in the urine, and the patient is instructed to void into a receptacle at the end of one hour, and into a second receptacle at the end of the second hour.

A rough estimate of the time of appearance can be made by having the patient void urine at frequent intervals, without the use of the catheter. In prostate cases it is wise to have the catheter in place until the end of the observation.

When a catheter is to be employed, it is well to previously have the patient under the influence of hexamethylenamin.

Sufficient sodium hydroxid (25 per cent.) is added to make the urine decidedly alkaline in order to elicit the maximum color. The color displayed in the acid urine is yellow or orange, and this immediately gives place to a brilliant purple-red color when the solution becomes alkaline. This solution is now placed in a liter measuring-flask and distilled water added to make accurately 1 liter. The solution is then thoroughly mixed, and a small filtered portion taken to compare with the standard which is used for all of these estimations.

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* From the Genito-Urinary and Medical Clinics of the Johns Hopkins Hospital and the Pharmacological Laboratory of the Johns Hopkins University. Read before the New York Academy of Medicine, May 4, 1911.

[1] Rowntree and Geraghty: Jour. Pharm. and Exper. Therap., July, 1910, i, 579.

[2] Rowntree and Geraghty: Ann d. mal. d. Org. genito-urin., 1911, i, Nos. 4 and 5; Geraghty and Rowntree: Tr. Assn. Am. Gen.-Urin. Surg., 1910, p. 59.

[3] Detailed reports of our later studies will shortly appear.

[4] Am. Chem. Jour., vi, 280.

Recently the He[illegible], especially modified for use in [illegible] work, has been utilized. A standard alkaline solution, 6 gm. to a liter, is placed in the wedge-shaped cup. The urine collected is diluted to a liter and a small filtered portion poured into the rectangular cup. The wedge-shaped cup is now manipulated by means of the screw until the two sides of the color field are identical. The percentage on the scale is now noted. This instrument is much cheaper than the Duboscq and approximately accurate. Fairly accurate estimations, however, can be obtained by means of graduated cylinders—equal quantities of the standard solution and the diluted urine being used in separate cylinders, and the denser solution being diluted until the colors become identical. The amount of drug in the solution being known, the amount in the urine can be readily calculated.

When the collected urine has been made strongly alkaline, it is necessary to estimate the phthalein within a few hours, as the red color fades gradually under these conditions. When it is desirable or necessary to defer the estimation for some hours or days, it is better to make the urine distinctly acid, under which condition the phthalein remains unchanged. It should, of course, be made alkaline again when the estimation is made.

EXCRETION IN NORMAL INDIVIDUALS

The excretion has been studied in several hundred normal individuals. In our earlier work subcutaneous administration was used exclusively, the drug appearing in the urine in from five to eleven minutes, 38 to 60 per cent. (average 50 per cent.) being excreted in the first hour after its appearance in the urine, and 60 to 85 per cent. for two hours. In health the elimination is practically complete in two hours, only a trace being present during the third and fourth hours.

Recently intramuscular and intravenous injections have been employed. The time of appearance following the intramuscular administration is practically the same as that after the subcutaneous, but the output averages 5 to 10 per cent. more for the first hour. Following the intravenous injection, the drug normally appears in from three to five minutes, and from 35 to 45 per cent. of the drug is eliminated in the first fifteen minutes, 50 to 65 per cent. in the first half hour, and 63 to 80 per cent. during the first hour. This rapidity of the excretion, following intravenous administration, is exceedingly striking, and when this method is employed, observations for a quarter-hour or half-hour period only should be employed. For general use, however, we advocate the lumbar intramuscular method (the latter particularly when edema is present), as the technic involved is much simpler and the results obtained are reliable. The technic of the test is exceedingly simple. The injection is given, time of appearance noted, and collection of urine made for one or two hours. To each sample sufficient sodium hydrate is added to insure alkalinity and maximum intensity of color; then the urine is diluted to 1 liter, a small amount is filtered, the reading made, and the percentage of drug excreted is calculated.

INFLUENCE OF AMOUNT OF URINARY SECRETION

The excretion of the drug does not run parallel to the excretion of urine. It is immaterial as far as the excretion of the drug is concerned whether the urinary output is 50, 200, 400 or 500 c.c. Similarly, the output does not seem to be much influenced by the previous administration of the different diuretics. Experimentally, on animals it was found that those diuretics (caffein, urea, dextrose, phloridzin, calomel) which are thought to exert a stimulating influence on the cells of the renal tubules, slightly increase the phthalein output, whereas those diuretics (hypertonic sodium chlorid, potassium nitrate and digitalis) which act entirely by mechanical factors as by changes in osmotic tension, or changes in blood-pressure, slightly decrease or cause no change in the excretion of phthalein. No definite influence was noted in man, following the dosage usually employed for diuresis, one-hour estimations being made.

THE STUDY OF NEPHRITIS

Heretofore, functional tests have not been considered of any great value to the clinician in relation to nephritis. In fact, hyperpermeability to methylene blue, indigo-carmin and rosanilin has been shown to exist in acute and in chronic parenchymatous nephritis, while, on the other hand, decreased permeability with slow appearance and prolonged excretion has been demonstrated in the chronic interstitial variety.

ACUTE NEPHRITIS

An opportunity to study only five cases of acute nephritis has presented itself.

While no conclusions can be drawn from five cases, it is sugestive that in none of them was there increased permeability, but that, on the contrary, the permeability was markedly decreased when the condition was considered clinically grave.

CHRONIC PARENCHYMATOUS NEPHRITIS

In all, twenty-one cases belonging to the clinical type of parenchymatous nephritis have been studied. These cases represent different grades of severity and the duration of the disease varies from a few weeks to seven years.

In two very mild cases of short duration showing only slight edema, with albumin and casts, but with a normal urinary output, the time of appearance of the drug and the amount excreted was normal. In one of these cases the time of appearance was eight minutes and the output 52.5 per cent. for one hour. The second patient was a student who considered himself perfectly well, but in whose urine albumin and casts were discovered by chance. On close inspection, a slight edema about the eyes was detected. No other evidence or suggestion of the disease could be found. In this instance 53 per cent. for the first hour and 8.6 per cent. for the second hour was excreted following subcutaneous injection.

In cases of longer standing, or those in which the disease is of ordinary severity, the time of appearance has always been delayed slightly (ten to twenty-five minutes) and the amount excreted is definitely below normal.

In the most severe grades of chronic parenchymatous nephritis, or those in which the disease is of long standing and associated with secondary sclerotic changes, the output is reduced very markedly, and in some instances no trace of the drug can be found in the urine. Here, also as in the interstitial type, the absolute failure of excretion, or the excretion of a mere trace, has been followed within a short time by death from renal failure.

Although the number of cases of chronic parenchymatous nephritis has not been very large, sufficient data have been collected to indicate that the test is of decided value in revealing the functional efficiency of the kidney in this condition. In the mild cases very little disturbance of function is indicated, and it may be impossible from the test alone to differentiate this condition from albuminuria. When there is a marked decrease in the phthalein output, marked renal changes are present, and when only excreted in traces, or not at all, a grave prognosis should be given, though no signs of uremia exist.

CHRONIC INTERSTITIAL NEPHRITIS

Twenty-two cases of the type clinically classed as chronic interstitial nephritis have been under observation. In many of these cases, previous to the administration of the phthalein test, no accurate idea of the degree of involvement of the renal function could be ascertained even after the most careful clinical study. The phthalein test has proved itself of immense value in revealing the degree of destruction of the renal substance, and has demonstrated itself to be of extreme importance from the standpoint of both diagnosis and prognosis.

In most of the cases of this series the time of appearance has been markedly delayed and the output of phthalein markedly decreased; where the output is lowest, the delay in appearance is most pronounced. The time of appearance, however, is not so important as the amount of excretion.

The following case is cited as an example of the accuracy of the test in revealing the true renal condition:

CASE 1.—*Patient.*—S. B. G., aged 55, surgical No. 25,174, was admitted Dec. 21, 1909, complaining of difficulty and frequent urination. These urinary symptoms were dependent on prostatic enlargement, the residual urine amounting to 440 c.c.

Examination.—Patient was apparently in good physical condition, well nourished, but slightly anemic. Urine slightly cloudy, acid, specific gravity 1,010, no sugar, slight trace of albumin and no casts. Urinary output 2,000 c.c. in twenty-four hours, urea ranging from 20 to 30 gm. for twenty-four hours. The phthalein test was given, a faint trace appearing in forty minutes, and at no time was more than the merest trace detected.

Repeated subsequent tests yielded always the same result. One week after administration the patient began to exhibit signs of uremia, which gradually increased until deep coma ended in death.

Autopsy.—Both kidneys presented marked atrophy, neither organ weighing one-third of normal, a severe grade of interstitial nephritis being present.

This case is of particular interest because of the fact that the urinary output, the urea, the total solids and the total nitrogen were normal and casts were also absent.

In the following case the diagnosis was exceedingly obscure until the evidence brought forward by the test was added. Before the administration of the test, nephritis was only one of many possibilities entertained.

CASE 2.—*Patient.*—Mrs. O., aged 47, admitted March 23, 1911, noted fatigue and dyspnea on slight exertion, together with slight edema of lower extremities. In December nausea and vomiting developed and have been present almost constantly since.

Examination.—The patient was poorly nourished and showed marked anemia; no edema of extremities. Urine was pale yellow, specific gravity 1,011, albumin, a trace; no casts on repeated examinations. Blood-pressure was 135. Eye-grounds were negative. Although nauseated, the patient was mentally bright and seemed in no immediate danger.

The phthalein test showed no output in three hours. Two days later the patient became irrational, dying within forty-eight hours in uremic convulsions. No autopsy was obtained.

The following case shows even more strikingly the ability of the phthalein test to reveal the presence of nephritis in the absence of any definite clinical evidence.

CASE 3.—*Patient.*—L. G., aged 12, admitted March 27, 1911, presented an interesting case of diabetes insipidus. The past history contained nothing of importance, except that large quantities of urine had been voided for some time and he experienced marked thirst.

Examination.—He was well nourished, not anemic, and apparently a normal-looking boy. His blood-pressure ranged from 80 to 90 m.m. Hg. Some thickening of the radial arteries was noted. No eye changes. The urine on admission was large in amount, 2,000 to 2,500 c.c., clear, specific gravity 1,005 to 1,010; no albumin, no casts. At this time no suspicion of nephritis was entertained. The phthalein test, performed March 28, showed an output of only 7 per cent. for two hours. Three days later only 2 per cent. was excreted. With the exception of the phthalein findings, absolutely no evidence of nephritis was present at this date. A week later the patient developed headache and a trace of albumin appeared in the urine. He rapidly became uremic and died April 9, 1911.

Autopsy.—A most intense grade of chronic interstitial nephritis was present, with almost complete disappearance of the cortex. A slight grade of acute nephritis was superimposed.

Chronic nephritis can exist over a long period without recognition, and may even exist in the absence of albumin and casts in the urine. The following is another case illustrating the presence of nephritis in the absence of positive clinical proof, and also the value of the phthalein test in revealing its existence.

CASE 4.—*History.*—F. G., aged 71, who had had six previous admissions for malaria, febricula, acute rheumatic fever and arthritis deformans during the last five years, was again admitted Nov. 7, 1910, for vertigo and attacks of loss of consciousness. Numerous urinalyses during these admissions failed to demonstrate any anomaly, except a trace of albumin at one single examination. An advanced arteriosclerosis and high blood-pressure were recorded on previous admissions.

Examination.—Urine was pale, 1,012, acid, albumin, occasional trace, no casts. Phthalein examination showed an output of only 5 per cent. for the first hour and 10 per cent. for the second, indicating a severe grade of nephritis.

Shortly afterward patient died of bronchopneumonia.

Autopsy.—Atrophy of the right kidney as the result of an old thrombosis of right renal artery, with chronic diffuse nephritis on the left side, small granular kidney.

UREMIA

In twenty-one cases under study, uremia has been present. Of this number, in fourteen uremia was grave; the patients exhibited nausea, vomiting, drowsiness or coma, and in several instances convulsions. In the remaining seven, mild symptoms only were present and had persisted over prolonged periods. Nine of the fourteen patients with grave uremia died during the attack. In all of these cases the phthalein elimination was zero or a faint trace only for two hours.

In two of the five patients recovering from their uremia, the output was 20 per cent., the uremia being the result of an acute exacerbation of a chronic nephritis. In two the output was 14 per cent.; in both of these the uremia was precipitated by a double pyelonephritis. The fifth case was one of acute exacerbation of chronic pyelonephritis in a man previously having had a nephrectomy. This last patient has greatly improved, and at present has a two-hour excretion of 13 per cent.

In the seven mild cases, exhibiting slight but persisting symptoms of uremia, the excretion respectively was as follows: 10 per cent. in one, 7 per cent. in three cases, a trace in two, 2 per cent. in the other for two hours. Five of these patients died within three months of the performance of the test. Those living are still exhibiting evidences of chronic uremia, four months having intervened in one instance.

Of four patients not exhibting uremia at the time of the test, but in which the phthalein output was below 8 per cent. for two hours, one excreting 6 per cent. died within two months, another within three months, and the other two are still living, in one two months, and in the other three weeks intervening, but both are exhibiting evidence of chronic uremia.

THE STUDY OF CARDIAC AND CARDIORENAL CASES

An attempt has been made to differentiate by means of this test between those cardiac cases with broken compensation or with passive congestion associated with the presence of albumin and casts in the urine and those cases in which cardiac insufficiency is associated with varying grades of true nephritis. In this connection thirty-three cases have been studied. From this study there appears to be no doubt but that decrease in function accompanies marked passive congestion of the kidneys in the absence of any true nephritis. As the cardiac condition improves, however, the passive congestion becoming less marked and edema subsiding, the output of phthalein increases, and in one case rose from 16 per cent. to normal in the course of one week, the patient in the meantime losing 70 pounds in weight with the disappearance of a general anasarca. We feel that the phthalein test will prove of value in determining what degree of renal efficiency exists in this class of disease, and subsequently with improvement in the cardiac condition and the disappearance of edema, a continued low phthalein excretion will indicate with considerable certainty the presence of permanent organic changes in the kidney. We feel, however, that a much larger series should be studied clinically and at autopsy before very definite conclusions can be drawn.

MISCELLANEOUS CASES

A large number of miscellaneous medical diseases have also been studied from the standpoint of phthalein excretion, among the number being ten cases of lobar pneumonia. In pneumonia the output is little if any decreased, and does not run parallel with the chlorid excretion. Three cases of persistent albuminuria have shown a normal output. In no disease other than renal, so far studied, has a marked reduction of the phthalein excretion been encountered.

THE RELATION OF PHTHALEIN OUTPUT TO BLOOD-PRESSURE, TO CHANGES IN THE EYE-GROUNDS AND TO THE BLOOD-PICTURE

In the majority of cases of chronic nephritis in which the blood-pressure has been high, the phthalein elimination has been markedly decreased, but no exact parallelism exists, inasmuch as not a few instances have been encountered in which the systolic pressure has been over 200 mm. Hg; and the phthalein output one-half of normal, while on the other hand there have been instances in which the blood-pressure has been normal while the phthalein output has been zero or nearly so, the patients shortly after dying in uremia. While a high blood-pressure, when present, is considered of diagnostic and prognostic value taken in conjunction with other clinical data, yet many patients died of renal insufficiency and exhibited a blood-pressure which was normal or practically so. Nor is the blood-pressure, even when high, increased in inverse proportion to the decrease in renal function.

While in some instances marked changes in the eye-grounds, choked disk, tortuous vessels, hemorrhages, etc., have been present coincident with a very low phthalein output, in many cases, even of the most advanced and even fatal nephritis, no changes whatever in the eye-grounds could be detected, the patient at the same time failing to eliminate the phthalein.

Moderate or rather severe grades of secondary anemia in the absence of disease of the kidneys can be present without any diminution in the phthalein elimination; for instance, two patients, one with 2,500,000 red cells, and hemoglobin 30 per cent., the other with hemoglobin 30 per cent., eliminated 61 and 57 per cent. for two hours, respectively.

VALUE OF TEST FROM A SURGICAL STANDPOINT

Through the encouragement of Dr. Hugh H. Young we have been enabled to study the phthalein excretion in a large series of cases of urinary obstruction, in order to determine the value of the test in revealing the functional capacity of the kidney in these cases. This is a consideration of grave importance in this connection, since the development of uremia or renal failure has been responsible for a great part of the mortality following surgical interference.

As a result of obstruction in the lower urinary tract, pathologic changes may occur in the ureters and kidneys, dilatation of the ureters, varying grades of hydronephrosis, and as a result of the continued high pressure, atrophy of the parenchyma of the kidney. Not infrequently, infection occurs with the development of a pyelitis, a diffuse or localized pyelonephritis, or pyonephrosis. The occurrence of these complications is often difficult of recognition, and is often overlooked, particularly in the absence of symptoms of renal inadequacy. A large proportion of these cases of urinary obstruction have cystitis associated with albuminuria. The presence of casts in the urine is no contra-indication to operation. The urinary output may be normal, also the urea and total solids, and yet the patient may be on the verge of renal failure and disastrous results may follow surgical interference.

The test has been used in 100 cases of urinary obstruction, mostly cases of prostatic hypertrophy. The technic involved in these cases necessitates the use of a catheter, otherwise it does not differ from that described above.

In the majority of cases, the test indicates a more or less degree of renal impairment, and taken in conjunction with the clinical condition it is of more value than the study of urine output, total solids, total nitrogen, and urea estimations combined.

A marked decrease in the amount excreted invariably means severe derangement of renal function, which may be of either a temporary or permanent character. Under such conditions one should proceed with extreme caution, and no surgical intervention should be attempted without further study together with preliminary treatment. Under this regime, repeated functional tests will demonstrate eventually the nature of the derangement, for in true interstitial nephritis the output will continue low, whereas if the derangement is purely functional or secondary to pyelonephritis, usually improvement will follow as a result of the treatment and will be indicated by a decrease in the time of appearance of the drug and simultaneously an increase in the amount eliminated.

The functional derangement due to infection in these cases is a much more dangerous condition than is the presence of even a fairly advanced condition of interstitial nephritis. The use of the test enables one to select the most favorable time for operation. In cases exhibiting a continued suspiciously low output, the use of nitrous oxid gas, or spinal anesthesia, is suggested as preferable to ether in order to protect the kidneys. When only a trace of the drug continues to be excreted, prostatectomy should not be attempted, even though the patient presents no evidence of uremia.

In our original paper we stated that a dropping phthalein output was a contra-indication to operation except in cases of necessity. This decrease in function usually means some change in the renal condition and in most of our cases it has been caused by the development of a pyelonephritis or an exacerbation of an old process. It is obviously wise to wait until the kidneys have recovered from this acute shock before subjecting them to further injury through operation.

The test can be used to equal advantage preliminary to any surgical procedure, when it is deemed important to know the true functional capacity of the kidneys.

TECHNIC OF THE PHTHALEIN TEST AS APPLIED TO ESTIMATION OF THE FUNCTION OF THE INDIVIDUAL KIDNEY

Functional tests have already demonstrated their value in this connection. But they have at most been able to determine only the relative working capacity of each kidney and have shed very little light on the absolute functional capacity of each organ.

The phthalein test in association with ureteral catheterization has been used in seventy cases of unilateral or bilateral disease.

Twenty minutes previous to examination 600 to 800 c.c. of water are given to the patient in order to insure a free flow of urine. The ureters are then catheterized.

As it is essential to collect all the urine secreted by each kidney during a definite period of time, in order to do accurate quantitative work, a form of ureteral catheter especially devised for this purpose has been used. The flute end catheter of Albarran, No. 6, or preferably No. 7, has been found to be most satisfactory. The catheters which have only side openings and no end opening cannot be depended on for this purpose.

The catheters are passed up into the ureters to a distance of four inches. The cystoscope is then withdrawn, leaving the ureteral catheters in position. A small ureteral catheter is now passed into the bladder and the bladder thoroughly emptied, so that leakage, should it occur, can be detected.

The time of injection is recorded, as is also the time of the appearance of the drug on each side. Starting from the time of appearance, the collection is then continued for one hour following subcutaneous or intramuscular injection. The amount of drug in each specimen is then estimated by the technic described above.

RESULTS OBTAINED WITH THE PHTHALEIN TEST

In normal cases the time of the appearance of the drug from the two sides has been almost always the same, and in the majority of cases this has been five to ten minutes following subcutaneous and three to five minutes following intravenous. The time, of course, will vary somewhat with the rate of urinary secretion. Normally the amount excreted by each kidney will be practically the same. The series of cases studied include tubercular or pyogenic infection, unilateral or bilateral, calculi, hydronephrosis, hypernephromata, etc.[5]

UNILATERAL OR BILATERAL SURGICAL DISEASE OF THE KIDNEY

It has been demonstrated that the time of appearance and the percentage of output is practically the same for the two healthy kidneys. When one kidney only is diseased, the time of the appearance of the drug is delayed on the diseased side, and the amount excreted is not only relatively but absolutely decreased. The amount of delay in the time of appearance is comparatively of little value. Reliance is only to be placed on the quantity excreted during a period of one-half or one hour, depending on the method of administration.

Although in the majority of these cases of unilateral disease the combined output is equal to that of two normal kidneys, the greater part of the excretion is shown to be performed by the healthy kidney. In proportion to the decrease in function on the diseased side, approximately there is a proportionate increase in the function on the healthy side. In such cases following nephrectomy the remaining kidney eliminates after the lapse of two or three weeks an amount of drug which is normally excreted by two healthy kidneys. In all cases studied, the output from the remaining kidney has been greater than the combined output from two kidneys prior to operation.

In bilateral disease it has been found possible to determine the individual function (absolute or relative) of each kidney. It is in this class of cases particularly that the shortcomings of other functional tests have been most apparent, as one kidney may be doing twice or three times the amount of work of the opposite kidney, and still be unable to assume the additional work of the other kidney. It may be doing the major part of the work at the expense of all, or nearly all, of its reserve power, but the phthalein test determines whether the kidney has a functional capacity which is normal, less than or greater than normal and to what degree. In three cases of double renal tuberculosis, in which the amount of pus from each side was practically the same, the test permitted it to be determined that one kidney in each instance had a function greatly in excess of the other, indeed sufficient functional capacity to allow of successful nephrectomy, marked improvement in general condition occurring subsequently in each case.

In six cases out of seventy we have found that the catheters caused some inhibition of function, as was also observed by Keyes Jr. and Stevens. This influence can readily be estimated by taking the total function either before or after catheterization.

The test has been used by us simultaneously with cryoscopy, phloridzin, indigo-carmin, and the polyurea test of Albarran. No particular advantage was added by combining with one or all.

CONCLUSIONS

1. The phenolsulphonephthalein as used by us has many advantages over all other functional tests thus far proposed.

2. Phenolsulphonephthalein itself is better adapted for use as a functional test than any other drug previously employed for the same purpose on account of its

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[5] The details concerning forty-two of these cases are considered in previous communications, Tr. Am. Assn., G.-U. Surg., 1911, and Ann. d. mal. d. org. génito-urin., February and March, 1911.

early appearance in the urine and the rapidity and completeness of its elimination by the kidney and the reliance to be placed on its findings.

3. The method of quantitative estimation of the amount of drug excreted is simple and exceedingly accurate.

4. It is of immense value from a diagnostic and prognostic standpoint in nephritis, inasmuch as it reveals the degree of functional derangement in nephritis whether of the acute or chronic variety.

5. In the cardiorenal cases the test may prove of value in determining to what degree renal insufficiency is responsible for the clinical picture presented.

6. The test has proved of value not only in diagnosing uremia from conditions simulating it, but has also successfully indicated that uremia was impending when no clinical evidence of its existence at the time was present.

7. The test has proved of great value in revealing the true renal condition in cases of urinary obstruction. It is here of more value than the urinary output of total solids, urea or total nitrogen and enables the surgeon to select a time for operation when the kidneys are in their most favorable functional condition. The improvement in the renal condition in cases of urinary obstruction, following the institution of preliminary drainage, is strikingly indicated by this test.

8. In unilateral and bilateral kidney disease the absolute amount of work done by each kidney, as well as the relative proportion, can be determined when the urines are obtained separately. We do not feel that this is always mathematically accurate, but in our series it has indicated the functional capacity to a degree not attained by any other test.

It is with the greatest pleasure that we thank Dr. Young for his early and continued interest in this work, and for the generous supply of clinical material referred to us by him, by Dr. Barker, Dr. Thayer and the other members of the hospital medical staff for the opportunity of studying the cardiac and nephritic cases, and Dr. F. W. Hobleman for his valuable assistance in carrying on the work, and Dr. Dunning of Hynson, Westcott, for kindly furnishing us with the phenol sulphonephthalein used throughout this study.

SOME OBJECTIONS TO THE USE OF ALUM BAKING-POWDER*

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I. INTRODUCTION

During a period of about seven years I have occasionally conducted experiments on the effects of aluminum salts. These studies have convinced me that the use in food of alum or any other aluminum compound is a dangerous practice. That the aluminum ion is very toxic is well known. That "aluminized" food yields soluble aluminum compounds to gastric juice (and stomach contents) has been demonstrated. That such soluble aluminum is in part absorbed and carried to all parts of the body by the blood can no longer be doubted. That the organism can "tolerate" such treatment without suffering harmful consequences has not been shown. It is believed that the facts in this paper will give emphasis to my conviction that aluminum should be excluded from food.[1]

II. EXPERIMENTS BY HOUSE AND GIES ON THE EFFECTS OF ALUMINUM COMPOUNDS ON THE GROWTH OF SEEDLINGS

Several years ago, in collaboration with House, I published the general results of a study of the influence of aluminum compounds on typical seedlings. The essential facts in that connection were summarized in the appended statement and accompanying table (Table 1).[2]

> Although aluminum compounds appear to exist in small proportions in many plants, and occur in traces in some animals, relatively little has been learned regarding the biological effects and significance of aluminum. The authors have begun a series of studies in this connection, the first of which has been an investigation of the influence of aluminum on lupin seedlings. The methods described by True and Gies[3] were used, and the following compounds were taken: aluminum sulphate, aluminum nitrate, aluminum chlorid, aluminum-sodium chlorid, potassium alum, and ammonium alum. The accompanying table (1) presents some of the more significant results, which represent the average of very many observations for periods of forty-eight to seventy-two hours.
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> In nearly all cases, in these experiments, little or no effect was produced at a concentration of $m/65{,}536$ [i. e., per liter the molecular weight in grams divided by 65,536]. In concentrations greater than $m/65{,}536$, growth usually was markedly inhibited. In concentrations less than $m/65{,}536$ and down to $m/1{,}048{,}576$, or $m/2{,}097{,}152$, growth was stimulated as a rule.

TABLE 1.—DATA SHOWING THE COMPARATIVE EFFECTS OF ALUMINUM COMPOUNDS ON THE GROWTH OF LUPIN SEEDLINGS

Aluminum Compound	Greatest Molecular Concentration that Permitted Slight Initial Growth	Least Molecular Concentration in Which There Was No Growth After 24 Hours	Greatest Molecular Concentration in Which Growth Was Equal to that in the Pure Water Control	Molecular Concentration in Which Initial Stimulation Took Place	Molecular Concentration in Which the Maximum Stimulation Occurred
	m/x	m/x	m/x	m/x	m/x
$Al_2(SO_4)_3$ ...	8,192	16,384	65,536	131,072	1,048,576[1]
$Al(NO_3)_3$	1,024	16,384	65,536	131,072	1,048,576
$AlCl_3$........	2,048[2]	2,048[2]	65,536[3]	131,072[4]	131,072
$AlCl_3NaCl$ ...	16,384	32,768	65,536	131,072	131,072
$KAl(SO_4)_2$ ...	1,024	4,096	32,768	65,536	131,072 524,288
$NH_4Al(SO_4)_2$..	8,192	16,384	131,072	262;144	524,288

1. The concentration of aluminum in a $m/1{,}048{,}576$ $AlCl_3$ solution is 0.000,0[illegible] per cent.
2. The concentration of aluminum in a $m/2{,}048$ $AlCl_3$ solution is 0.001,3 per cent.
3. The concentration of aluminum in a $m/65{,}536$ $AlCl_3$ solution is 0.000,04 per cent.
4. About midway between $m/131{,}072$ and $m/65{,}536$. The concentration of aluminum in a $m/131{,}072$ $AlCl_3$ solution is 0.000,02 per cent.

These results showed clearly that compounds of aluminum, such as the chlorid, even when present in very minute proportions, are strong protoplasmic poisons and very toxic to growing plants.

III. MALLET'S EXPERIMENTS ON THE SOLUBILITY, IN GASTRIC CONTENTS, OF ALUMINUM COMPOUNDS CONTAINED IN BREAD MADE WITH ALUM BAKING-POWDER

Two years ago I was asked by Prof. J. W. Mallet to examine and discuss some results of Professor Mallet's investigation on the "solubility, in the stomach, of aluminum compounds contained in bread made with alum baking-powder." These results were summarized in the appended personal statement by Professor Mallet (dated Aug. 27, 1909):

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* From the Laboratory of Biological Chemistry of Columbia University, at the College of Physicians and Surgeons, New York.

[1] This paper is purposely restricted to a discussion of the work of the author and his collaborators.

[2] House and Gies: Am. Jour. Physiol., 1906, xv; Proc. Am. Physiolog. Soc.,

[3] True and rey Botanical Club, 1903, xxx, 390. Also Biochemical Researches 1903, i (reprint

EXPERIMENTS PERFORMED BY PROFESSOR MALLET

The baking-powder used was of the "Bob White" brand—a "straight alum" powder—and was purchased in the open market. After addition of water the reaction was slightly alkaline. The flour selected was of choice quality for family use, prepared by the roller process. Bread was made with

	Gm.
Flour[4]	550
Common salt	8
White sugar	5
Baking powder (2 heaping teaspoonfuls)	16
Water	231

Great care was taken to secure uniform mixture of the solid materials by repeated siftings before water was added, and the dough was very thoroughly kneaded. The quantity of water stated is that remaining in the baked bread as eaten, allowance being made for the carbon dioxid gas expelled. The bread was baked as a batch of rolls to a light yellowish-brown crust. The porosity was uniform and satisfactory. The bread was palatable, notwithstanding the omission of any shortening ingredient.

Three persons were selected as subjects for experiment, viz.:
A.—J. N., white, male, aged 21. In normal health and condition.
B.—L. B., white, male, aged 21. In normal health and condition.
C.—W., Negro, male, aged 23. In normal health and condition.
Each of these subjects, having eaten nothing since the previous evening, ate in the morning a portion of the specially prepared bread, taking with it a limited quantity of water, avoiding great dilution with the latter.

A took about 128 gm. of bread and 175 c.c. of water.
B took about 85 gm. of bread and 175 c.c. of water.
C took about 171 gm. of bread and 325 c.c. of water.

An hour after eating, the contents of the stomach were in each case withdrawn by means of a stomach-tube, the turbid liquid obtained measuring:

In the case of A	156 c.c.
In the case of B	182 c.c.
In the case of C	197 c.c.

This turbid material was at once carefully filtered through muslin and then through paper, until a clear liquid was obtained. The filtration was slow, and the residue was lightly washed with a small quantity of water. The reaction of the liquid was in all three cases markedly acid.

The whole of the filtrate was in each case evaporated to dryness in a platinum dish over a water-bath, the dry residue carefully incinerated in the same dish, and the ash fused with sodium carbonate and a minute quantity of sodium nitrate, to destroy the last traces of organic matter. The fused residue was dissolved by nitric acid, the phosphoric acid radical removed by ammonium molybdate, and aluminum hydroxid precipitated by ammonia. The precipitate was again dissolved by nitric acid, again thrown down by ammonia, treated with pure sodium hydroxid to separate iron, once more precipi- by ammonium chlorid, thoroughly washed, dried, ignited and weighed. All parts of the process involving the use of heat were carried out in platinum vessels. In this way there was recovered from the contents of the stomach:

In the case of A	21 mg. of alumina (Al_2O_3)
In the case of B	23 mg. of alumina (Al_2O_3)
In the case of C	13 mg. of alumina (Al_2O_3)

In each case of alumina, after weighing, was fused with sodium carbonate, dissolved by hydrochloric acid, reprecipitated as hydroxid by ammonia, and fully identified by the use of all the chief tests for aluminum in its compounds.

Assuming the baking-powder to have been uniform in composition and to have been uniformly distributed in the bread, the three subjects had swallowed aluminum in the following amounts:

In the case of A	107 mg. of Al_2O_3
In the case of B	71 mg. of Al_2O_3
In the case of C	143 mg. of Al_2O_3

and hence of this there was recovered in solution from the portion of the stomach contents obtained:

In the case of A	19.6 per cent.
In the case of B	32.4 per cent.
In the case of C	9.1 per cent.

PROFESSOR MALLET'S CONCLUSIONS

The differences between these figures are not surprising in view of the unknown and variable quantities of gastric juice secreted in a given time, its variable degree of acidity, and the different proportions of diluting water. It will be seen that the smallest amount of aluminum—both absolute and in proportion to the amount swallowed—was recovered from the contents of the stomach of subject C, who ate most bread and took the largest absolute amount of water with it. It is to be borne in mind that not the whole, but only a part, of the contents of the stomach was in each case removed by the tube, and that hence the quantity of aluminum recovered in soluble form represents but a part of that which was actually dissolved.

The general result is plainly apparent, that a part, and no inconsiderable part, of the aluminum in the ingested bread made with alum baking powder was, under the action of the gastric juice, present in dissolved form in the stomach of each of the subjects of the experiments.

THE PRESENT WRITER'S OPINION OF PROFESSOR MALLET'S EXPERIMENTS AND OF THE SIGNIFICANCE OF THEIR RESULTS

In response to the request for an opinion regarding the possibly harmful effects of aluminum in the proportions (in gastric contents) that occurred in the experiments described above, I wrote in this connection to Professor Mallet as follows (Oct. 11, 1909):

The results given in your statement show clearly that well-baked bread, made with an alum baking-powder, contains aluminum in a form that will yield a surprisingly large proportion of a soluble aluminum compound or compounds to human gastric juice under normal conditions in the stomach. In one of your experiments, as much as 32.4 per cent. of the amount of aluminum introduced with the ingested bread was found in 182 c.c. of gastric contents removed "an hour after eating"—which volume was not, of course, the entire volume in the stomach at the time, to say nothing of prior natural intermittent removals of partly digested matter into the intestine. These facts suggest that in many instances more than one-third of the aluminum in the ingested portion of such bread may occur, at a time, in a *soluble* form in the digestive contents of the stomach. These data being before one—and your determination of them is conclusive assurance of their accuracy—what may be said regarding the "physiologic effects" of the aluminum that thus appears in the gastric juice in dissolved form?

I believe that aluminum, if present in the stomach, day after day, in dissolved form in such proportions would tend to modify unfavorably the gastric secretory and digestive processes. There would be repeated attacks on the mucous membrane, especially through the astringent and protein-precipitating properties of the dissolved aluminum. The associated presence of much protein material would tend to diminish such action, however, by causing the production of less toxic forms of *combined* aluminum.

I am satisfied that people with "poor digestions" would be influenced ultimately to their further disadvantage, as a rule, by meals usually containing aluminized bread. It is true that multitudes are able to withstand the deleterious influence of various poisonous substances, even for long periods, without exhibiting *distinguishable* detriment. Such seeming lack of direct harmful influence, however, is often insidiously mislead-

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[4] The flour used in these experiments was examined for aluminum and yielded in the ash the equivalent of less than 1 mg. of Al_2O_3 for the largest quantity of bread eaten by any of the subjects.

appended personal statement by Professor Mallet (dated Aug. 27, 1909):

EXPERIMENTS PERFORMED BY PROFESSOR MALLET

The baking-powder used was of the "Bob White" brand—a "straight alum" powder—and was purchased in the open market. After addition of water the reaction was slightly alkaline. The flour selected was of choice quality for family use, prepared by the roller process. Bread was made with

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Baking powder (2 heaping teaspoonfuls)	16
Water	231

Great care was taken to secure uniform mixture of the solid materials by repeated siftings before water was added, and the dough was very thoroughly kneaded. The quantity of water stated is that remaining in the baked bread as eaten, allowance being made for the carbon dioxid gas expelled. The bread was baked as a batch of rolls to a light yellowish-brown crust. The porosity was uniform and satisfactory. The bread was palatable, notwithstanding the omission of any shortening ingredient.

Three persons were selected as subjects for experiment, viz.:
A.—J. N., white, male, aged 21. In normal health and condition.
B.—L. B., white, male, aged 21. In normal health and condition.
C.—W., Negro, male, aged 23. In normal health and condition.
Each of these subjects, having eaten nothing since the previous evening, ate in the morning a portion of the specially prepared bread, taking with it a limited quantity of water, avoiding great dilution with the latter.

A took about 128 gm. of bread and 175 c.c. of water.
B took about 85 gm. of bread and 175 c.c. of water.
C took about 171 gm. of bread and 325 c.c. of water.

An hour after eating, the contents of the stomach were in each case withdrawn by means of a stomach-tube, the turbid liquid obtained measuring:

In the case of A	156 c.c.
In the case of B	182 c.c.
In the case of C	197 c.c.

This turbid material was at once carefully filtered through muslin and then through paper, until a clear liquid was obtained. The filtration was slow, and the residue was lightly washed with a small quantity of water. The reaction of the liquid was in all three cases markedly acid.

The whole of the filtrate was in each case evaporated to dryness in a platinum dish over a water-bath, the dry residue carefully incinerated in the same dish, and the ash fused with sodium carbonate and a minute quantity of sodium nitrate, to destroy the last traces of organic matter. The fused residue was dissolved by nitric acid, the phosphoric acid radical removed by ammonium molybdate, and aluminum hydroxid precipitated by ammonia. The precipitate was again dissolved by nitric acid, again thrown down by ammonia, treated with pure sodium hydroxid to separate iron, once more precipi- by ammonium chlorid, thoroughly washed, dried, ignited and weighed. All parts of the process involving the use of heat were carried out in platinum vessels. In this way there was recovered from the contents of the stomach:

In the case of A	21 mg. of alumina (Al_2O_3)
In the case of B	23 mg. of alumina (Al_2O_3)
In the case of C	13 mg. of alumina (Al_2O_3)

In each case of alumina, after weighing, was fused with sodium carbonate, dissolved by hydrochloric acid, reprecipitated as hydroxid by ammonia, and fully identified by the use of all the chief tests for aluminum in its compounds.

Assuming the baking-powder to have been uniform in composition and to have been uniformly distributed in the bread, the three subjects had swallowed aluminum in the following amounts:

In the case of A	107 mg. of Al_2O_3
In the case of B	71 mg. of Al_2O_3
In the case of C	143 mg. of Al_2O_3

and hence of this there was recovered in solution from the portion of the stomach contents obtained:

In the case of A	19.6 per cent.
In the case of B	32.4 per cent.
In the case of C	9.1 per cent.

PROFESSOR MALLET'S CONCLUSIONS

The differences between these figures are not surprising in view of the unknown and variable quantities of gastric juice secreted in a given time, its variable degree of acidity, and the different proportions of diluting water. It will be seen that the smallest amount of aluminum—both absolute and in proportion to the amount swallowed—was recovered from the contents of the stomach of subject C, who ate most bread and took the largest absolute amount of water with it. It is to be borne in mind that not the whole, but only a part, of the contents of the stomach was in each case removed by the tube, and that hence the quantity of aluminum recovered in soluble form represents but a part of that which was actually dissolved.

The general result is plainly apparent, that a part, and no inconsiderable part, of the aluminum in the ingested bread made with alum baking powder was, under the action of the gastric juice, present in dissolved form in the stomach of each of the subjects of the experiments.

THE PRESENT WRITER'S OPINION OF PROFESSOR MALLET'S EXPERIMENTS AND OF THE SIGNIFICANCE OF THEIR RESULTS

In response to the request for an opinion regarding the possibly harmful effects of aluminum in the proportions (in gastric contents) that occurred in the experiments described above, I wrote in this connection to Professor Mallet as follows (Oct. 11, 1909):

The results given in your statement show clearly that well-baked bread, made with an alum baking-powder, contains aluminum in a form that will yield a surprisingly large proportion of a soluble aluminum compound or compounds to human gastric juice under normal conditions in the stomach. In one of your experiments, as much as 32.4 per cent. of the amount of aluminum introduced with the ingested bread was found in 182 c.c. of gastric contents removed "an hour after eating"—which volume was not, of course, the entire volume in the stomach at the time, to say nothing of prior natural intermittent removals of partly digested matter into the intestine. These facts suggest that in many instances more than one-third of the aluminum in the ingested portion of such bread may occur, at a time, in a *soluble* form in the digestive contents of the stomach. These data being before one—and your determination of them is conclusive assurance of their accuracy—what may be said regarding the "physiologic effects" of the aluminum that thus appears in the gastric juice in dissolved form?

I believe that aluminum, if present in the stomach, day after day, in dissolved form in such proportions would tend to modify unfavorably the gastric secretory and digestive processes. There would be repeated attacks on the mucous membrane, especially through the astringent and protein-precipitating properties of the dissolved aluminum. The associated presence of much protein material would tend to diminish such action, however, by causing the production of less toxic forms of *combined* aluminum.

I am satisfied that people with "poor digestions" would be influenced ultimately to their further disadvantage, as a rule, by meals usually containing aluminized bread. It is true that multitudes are able to withstand the deleterious influence of various poisonous substances, even for long periods, without exhibiting *distinguishable* detriment. Such seeming lack of direct harmful influence, however, is often insidiously misleadearly appearance in the urine and the rapidity and completeness of its elimination by the kidney and the reliance to be placed on its findings.

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[4] The flour used in these experiments was examined for aluminum and yielded in the ash the equivalent of less than 1 mg. of Al_2O_3 for the largest quantity of bread eaten by any of the subjects.

3. The method of quantitative estimation of the amount of drug excreted is simple and exceedingly accurate.

4. It is of immense value from a diagnostic and prognostic standpoint in nephritis, inasmuch as it reveals the degree of functional derangement in nephritis whether of the acute or chronic variety.

5. In the cardiorenal cases the test may prove of value in determining to what degree renal insufficiency is responsible for the clinical picture presented.

6. The test has proved of value not only in diagnosing uremia from conditions simulating it, but has also successfully indicated that uremia was impending when no clinical evidence of its existence at the time was present.

7. The test has proved of great value in revealing the true renal condition in cases of urinary obstruction. It is here of more value than the urinary output of total solids, urea or total nitrogen and enables the surgeon to select a time for operation when the kidneys are in their most favorable functional condition. The improvement in the renal condition in cases of urinary obstruction, following the institution of preliminary drainage, is strikingly indicated by this test.

8. In unilateral and bilateral kidney disease the absolute amount of work done by each kidney, as well as the relative proportion, can be determined when the urines are obtained separately. We do not feel that this is always mathematically accurate, but in our series it has indicated the functional capacity to a degree not attained by any other test.

It is with the greatest pleasure that we thank Dr. Young for his early and continued interest in this work, and for the generous supply of clinical material referred to us by him, by Dr. Barker, Dr. Thayer and the other members of the hospital medical staff for the opportunity of studying the cardiac and nephritic cases, and Dr. F. W. Hobleman for his valuable assistance in carrying on the work, and Dr. Dunning of Hynson, Westcott, for kindly furnishing us with the phenol sulphonephthalein used throughout this study.

SOME OBJECTIONS TO THE USE OF ALUM BAKING-POWDER*

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I. INTRODUCTION

During a period of about seven years I have occasionally conducted experiments on the effects of aluminum salts. These studies have convinced me that the use in food of alum or any other aluminum compound is a dangerous practice. That the aluminum ion is very toxic is well known. That "aluminized" food yields soluble aluminum compounds to gastric juice (and stomach contents) has been demonstrated. That such soluble aluminum is in part absorbed and carried to all parts of the body by the blood can no longer be doubted. That the organism can "tolerate" such treatment without suffering harmful consequences has not been shown. It is believed that the facts in this paper will give emphasis to my conviction that aluminum should be excluded from food.[1]

II. EXPERIMENTS BY HOUSE AND GIES ON THE EFFECTS OF ALUMINUM COMPOUNDS ON THE GROWTH OF SEEDLINGS

Several years ago, in collaboration with House, I published the general results of a study of the influence of aluminum compounds on typical seedlings. The essential facts in that connection were summarized in the appended statement and accompanying table (Table 1).[2]

> Although aluminum compounds appear to exist in small proportions in many plants, and occur in traces in some animals, relatively little has been learned regarding the biological effects and significance of aluminum. The authors have begun a series of studies in this connection; the first of which has been an investigation of the influence of aluminum on lupin seedlings. The methods described by True and Gies[3] were used, and the following compounds were taken: aluminum sulphate, aluminum nitrate, aluminum chlorid, aluminum-sodium chlorid, potassium alum, and ammonium alum. The accompanying table (1) presents some of the more significant results, which *represent the average of very many observations for periods of forty-eight to seventy-two hours.*
>
> In nearly all cases, in these experiments, little or no effect was produced at a concentration of $m/65,536$ [i. e., per liter the molecular weight in grams divided by 65,536]. In concentrations greater than $m/65,536$, growth usually was markedly inhibited. In concentrations less than $m/65,536$ and down to $m/1,048,576$, or $m/2,097,152$, growth was stimulated as a rule.

TABLE 1.—DATA SHOWING THE COMPARATIVE EFFECTS OF ALUMINUM COMPOUNDS ON THE GROWTH OF LUPIN SEEDLINGS

Aluminum Compound	Greatest Molecular Concentration that Permitted Slight Initial Growth	Least Molecular Concentration in Which There Was No Growth After 24 Hours	Greatest Molecular Concentration in Which Growth Was Equal to that in the Pure Water Control	Molecular Concentration in Which Initial Stimulation Took Place	Molecular Concentration in Which the Maximum Stimulation Occurred
	m/x	m/x	m/x	m/x	m/x
$Al_2(SO_4)_3$ ...	8,192	16,384	65,536	131,072	1,048,576[1]
$Al(NO_3)_3$	1,024	16,384	65,536	131,072	1,048,576
$AlCl_3$........	2,048[2]	2,048[2]	65,536[3]	131,072[4]	131,072
$AlCl_3NaCl$ ...	16,384	32,768	65,536	131,072	131,072
$KAl(SO_4)_2$ ..	1,024	4,096	32,768	65,536	{ 131,072 { 524,288
$NH_4Al(SO_4)_2$..	8,192	16,384	131,072	262;144	524,288

1. The concentration of aluminum in a $m/1,048,576$ $AlCl_3$ solution is 0.000,003 per cent.
2. The concentration of aluminum in a $m/2,048$ $AlCl_3$ solution is 0.001,3 per cent.
3. The concentration of aluminum in a $m/65,536$ $AlCl_3$ solution is 0.000,04 per cent.
4. About midway between $m/131,072$ and $m/65,536$. The concentration of aluminum in a $m/131,072$ $AlCl_3$ solution is 0.000,02 per cent.

These results showed clearly that compounds of aluminum, such as the chlorid, even when present in very minute proportions, are strong protoplasmic poisons and very toxic to growing plants.

III. MALLET'S EXPERIMENTS ON THE SOLUBILITY, IN GASTRIC CONTENTS, OF ALUMINUM COMPOUNDS CONTAINED IN BREAD MADE WITH ALUM BAKING-POWDER

Two years ago I was asked by Prof. J. W. Mallet to examine and discuss some results of Professor Mallet's investigation on the "solubility, in the stomach, of aluminum compounds contained in bread made with alum baking-powder." These results were summarized in the

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* From the Laboratory of Biological Chemistry of Columbia University, at the College of Physicians and Surgeons, New York.

[1] This paper is purposely restricted to a discussion of the work of the author and his collaborators.

[2] House and Gies: Am. Jour. Physiol., 1906, xv; Proc. Am. Physiolog. S-

[3] True rey Botanical Club, 1903, xxx, 390. Biochemical Researches 1903, i (rep

540 gm. of his blood were withdrawn. This quantity of blood contained the aluminum in 2.6 mg. of Al_2O_3.

Experiment 5.—A dog weighing 19 kilos was given 3.6188 gm. of alum (4 × 0.9047 gm.). Seven hours later, 787 gm. of his blood were subjected to analysis. This quantity of blood contained the aluminum in 10.9 mg. of Al_2O_3.

Experiment 6.—A dog weighing 17 kilos was given 2.7141 gm. of alum (3 × 0.9047 gm.). Five and three-quarters hours later, 736 gm. of his blood were analyzed. This quantity of blood contained the aluminum in 6.7 mg. of Al_2O_3.

Experiment 7.—A dog weighing 17.6 kilos was given 3.6188 gm. of alum (4 × 0.9047 gm.). Six and one-half hours later, 996 gm. of his blood were secured. This quantity of blood concontained the aluminum in 3 mg. of Al_2O_3.

Experiment 8.—A dog weighing 13.4 kilos was given 0.9047 gm. of alum *daily for eight days.* On the eighth day, six hours after the last dosage, the animal was bled to death. One thousand and fifty-eight (1,058) gm. of his blood were available. This quantity of blood contained the aluminum in 3 mg. of Al_2O_3.

Experiment 9.—A dog weighing 10 kilos was given 0.9047 gm. of alum *daily for eight days.* On the eighth day, five hours after the last dosage, the animal was bled to death and 996 gm. of his blood were secured. This quantity of blood contained the aluminum in 4.3 mg. of Al_2O_3.

In Experiments 10 and 11 aluminum was administered in biscuits baked with alum baking-powder. In these experiments (10 and 11) the dogs ingested portions of the same supplies of meat, lard and bone-ash that were available for the previous experiments; but, instead of cracker meal, they were given alum baking-powder biscuits, which were made of the ingredients that are specified in the summary in the first part of this section of the paper. The biscuits were very thoroughly baked.

Experiment 10.—A dog weighing 13 kilos was given daily, *for ten days,* about 5 gm. of alum baking powder (in baked biscuits). On the tenth day he was bled to death and 650 gm. of his blood were oxidized. This quantity of blood contained the aluminum in 2.6 mg. of Al_2O_3.

Experiment 11.—A dog weighing 11.1 kilos was given daily, *for nine days,* about 4 gm. of alum baking-powder (in baked biscuits). On the ninth day he was bled to death and 572 gm. of his blood were analyzed. This quantity of blood contained the aluminum in 1.5 mg. of Al_2O_3.

TABLE 2.—DATA SHOWING THE PASSAGE OF ALUMINUM FROM THE ALIMENTARY TRACT INTO THE BLOOD

Exp. Number	Weight of Dog (kilos)	Dose of Alum (gm.)	Time Between Dosage and Bleeding (hr.)	Weight of Blood Taken (gm.)	Total Weight of $FePO_4$ + $AlPO_4$ (gm.)	Weight of $AlPO_4$ (mg.)	Weight of Al_2O_3 from the Total Amt. of Blood Taken* (mg.)
1	24.5	0.9047	3	800	0.9644	3.2	1.3
2	24.4	1.8094	5	726	0.8820	4.5	1.9
3	24.5	3.6188	7	857	0.9450	14.1	5.9
4	13.4	1.8094	6½	540	0.7650	6.0	2.6
5	19.0	3.6188	7	787	1.0170	26.0	10.9
6	17.0	2.7141	5¾	736	1.3980	15.0	6.7
7	17.6	3.6188	6½	738	0.8960	7.0	3.0
8	13.4	0.9047	6	1058	1.1330	7.1	3.0
9	10.0	0.9047	5	996	1.0285	10.5	4.3
10	13.0	†5	6	650	0.7854	6.2	2.6
11	11.1	†4	7	572	0.5136	3.6	1.5

* See the second paragraph after the description of Experiment 11.
† Alum baking-powder in biscuits.

The essential data of Experiments 1 to 11, inclusive, are summarized in Table 2. The results there tabulated make it evident that aluminum passes into the blood in considerable proportions from alum in the diet. They also show that aluminum does not tend to accumulate in the blood.

These analytic data apply, of course, to the blood only at the moment of its removal from the body. Under the conditions of the experiments, it is certain that aluminum passed into and from the blood in much larger *total* quantities than those indicated. In Experiments 1 to 7, inclusive, the quantities of available blood ranged from 2.9 per cent. to 4.3 per cent. of the body weight. From three to four times as much aluminum as the quantity shown in the table was therefore contained in the whole volume of blood of the corresponding animal at the moment of bleeding (Experiments 1 to 7).

The results of Experiments 10 and 11 show clearly that the aluminum in alum baking-powder is not rendered wholly insoluble in the bread-baking process. Amounts of aluminum equal to some of those recovered after the administration of plain alum in powdered form (Experiments 1 to 9, inclusive) were found in the blood of the dogs that received the alum baking-powder biscuits.[12]

EXPERIMENTS SHOWING THAT ALUMINUM PASSES FROM THE BLOOD INTO THE FECES

The results of the foregoing experiments suggest that aluminum was not only absorbed from the gastrointestinal tract and distributed in the blood throughout the body, but also was eliminated fairly rapidly from the circulation. In considering the matter of its excretion from the body, we concluded to ascertain, first, whether aluminum passes into the feces after the parenteral introduction of aluminum chlorid.

The animals selected for four experiments in this connection were normal, vigorous dogs, weighing between 8 and 10 kilos. The daily diet was similar to that for the dogs in the first nine experiments. In each case the animal was kept on our standard diet for about ten days before feces were collected for analysis. Thereafter all the feces for the six days previous to the introduction of aluminum were carefully analyzed for aluminum.[13] *None was found in any instance in the feces passed prior to the corresponding injection.*

We selected aluminum chlorid as the salt for intravenous injection in these experiments, because it is probable that aluminum chlorid is produced from aluminized food in the stomach. A dilute solution, containing the aluminum equivalent of 0.9 mg. of Al_2O_3 per c.c. of physiologic saline solution, was very slowly

TABLE 3.—DATA SHOWING THE PASSAGE OF ALUMINUM FROM THE BLOOD TO THE FECES[1]

Experiment Number	Weight of Dog (kilos)	Amount of Aluminum Injected (calculated as mg. of Al_2O_3)	Dry Weight of Feces Eliminated During the Three Days Following the Injection (gm.)	Amount of Aluminum Found in the Feces During the 6 Days Previous to the Injection	Amount of Aluminum Found in the Feces During the 3 Days Following the Injection (mg. of Al_2O_3)	Percentage of the Injected Aluminum that Was Recovered
12	10.0	9	67.5	None	1.0	11.11
13	9.4	18	64.0	None	1.1	6.11
14	8.2	36	47.5	None	1.9	5.27
15	9.2	82.8	56.0	None	4.6	5.55

1. A dilute solution of $AlCl_3$ in physiologic saline solution was injected into a saphenous vein.

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[12] The reader is again reminded of the fact that special care was taken to subject the biscuits to very thorough baking.

[13] The feces (Experiments 12 to 15), prior to the precipitation of any aluminum contained in them, were incinerated in a platinum dish. The ash was dissolved in dilute hydrochloric acid solution. This solution was directly subjected to the analytic procedure described in Footnote 10.

> ing, as in the case of various auto-intoxications which, until lately, have unwisely been regarded indifferently as "normal" ones and, erroneously, as without permanent, harmful influences. Unless we know *positively* that a substance which is foreign to natural foods and not intended particularly for medicinal effects, can be introduced into the stomach, repeatedly in small amounts, without *possibly* causing harmful results in some cases, either immediately or in time, I believe it is in the public interest to urge "hands off" until such supportive evidence for the substance in question is convincingly produced.
>
> I believe that aluminum, if present in the stomach day after day, in the soluble proportions you have found, would disturb the integrity of the secretory gastric cells, just as traces of soluble aluminum compounds strikingly prevent growth in plants by poisoning the cells. The fact that aluminum is normally contained in plants must not be considered apart from the very significant circumstances that the amount in which it occurs in any edible vegetable material is very minute; and practically all of that exists in forms which are there insoluble. The data in the footnote attached to your statement regarding the presence of the merest trace of aluminum in the flour you employed in your experiments, emphasize this point.
>
> Your statement does not indicate the proportion, or the conditions, of the acid in the aluminized gastric contents which you examined. Your figures for the proportions of contained aluminum may be much greater in subsequent tests, if the acidity of the gastric contents you examine later happens to be higher, as might be the case.
>
> In short, I believe such bread as you mention is likely to induce harmful digestive effects, especially if used throughout comparatively long periods, and particularly in people whose digestive processes are not vigorous or normally effective. I also feel that the public should be given the benefit of any possible doubt in this matter until it is shown, without question, that aluminized bread as commonly used cannot possibly be inimical to the health, not only of those who are robust and who apparently "can stand anything," but especially of those who are most susceptible to injury and disease. I am convinced, from a careful study of the literature on the subject, that the reasonable doubts on this score that relate to alum baking-powder have not been removed.

The correspondence with Professor Mallet also developed the fact that the aluminum in filtered gastric contents, in experiments like those conducted by Professor Mallet, is readily diffusible through parchment membranes, an observation suggesting, though not proving, that soluble aluminum compounds such as aluminum chlorid are diffusible through membranes in living organisms.

At Professor Mallet's suggestion I lately directed some experiments on the passage of aluminum from the alimentary tract into the blood. A recent paper by Prof. Matthew Steel[5] gives the results of this particular study and also presents additional data which show that aluminum passes from the blood into the feces. In the appended review of our procedure and results, free use is made of Professor Steel's paper.

IV. STEEL'S EXPERIMENTS ON THE ABSORPTION AND EXCRETION OF ALUMINUM

Professor Steel's investigation consisted of fifteen experiments on dogs. Eleven of the experiments pertained to the passage of aluminum into the blood from aluminized food, and four experiments related directly to the passage of aluminum from the blood into the feces. In Experiments 1 to 9 (described below) alum was administered in powdered form in balls of hashed meat. In Experiments 10 and 11 biscuits baked with alum baking-powder were fed. In Experiments 12 to 15, inclusive, aluminum chlorid in physiologic saline solution was injected intravenously. All the experiments were performed on full-grown, normal, healthy dogs. The animals, while under observation, were confined in cages of the kind now in constant use in this laboratory.[6] The daily food of the animals with two exceptions (Experiments 10 and 11) consisted of a mixture of hashed lean beef, lard, cracker meal, bone-ash, and water. The raw beef was taken from large supplies preserved in a frozen condition.[7]

In Experiments 10 and 11 biscuits prepared with alum baking-powder were substituted for the cracker meal. The biscuits, which were made by the process that Professor Mallet employed in his experiments, were baked with special thoroughness. The ingredients were mixed in the following proportions:[8]

	gm.
Flour	550
Sodium chlorid	8
Sucrose	5
"Bob White" baking-powder	16
Water .... Enough to make a biscuit dough	

EXPERIMENTS SHOWING THAT ALUMINUM PASSES FROM THE ALIMENTARY TRACT INTO THE BLOOD

Eleven experiments were performed to determine whether aluminum passes from aluminized food into the blood. In Experiments 1 to 9, inclusive, the aluminum was added to the food as powdered alum in balls of hashed beef.

Experiment 1.—The weight of the dog was about 24.5 kilos. He was given 0.9047 gm. of alum in order to administer aluminum equivalent to that in 100 mg. of Al_2O_3.[9] Three hours after feeding, 800 gm. of the dog's blood were taken. This quantity of blood contained the aluminum in 1.3 mg. of Al_2O_3.[10] (The dog was used in Experiments 2 and 3.)[11]

Experiment 2.—Eight days later (Experiment 1), when the dog used in Experiment 1 had practically regained his normal weight, he was given 1.8094 gm. of alum (2×0.9047 gm.). Five hours after feeding, 726 gm. of his blood were removed. This quantity of blood contained the aluminum in 1.9 mg. of Al_2O_3. (The dog was used in Experiment 3.)

Experiment 3.—Although the dog used in Experiments 1 and 2 had regained his normal weight within five days, no alum was given until eleven days after the termination of Experiment 2. At this time the dog received 3.6188 gm. of alum (4 × 0.9047 gm.). Seven hours after feeding, 857 gm. of his blood were obtained. This quantity of blood contained the aluminum in 5.9 mg. of Al_2O_3.

Experiment 4.—A dog weighing 13.4 kilos was given 1.8094 gm. of alum (2 by 0.9047 gm.). Six and one-half hours later,

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[5] Steel: Am. Jour. Physiol', 1911, xxviii, 94.

[6] Gies: Am. Jour. Physiol., 1905, xv, 403.

[7] Gies: Am. Jour. Physiol., 1901, v, 235; Proc. Soc. Exper. Biol. and Med., 1908, vi, 27.

[8] The flour contained the merest trace of aluminum. The "Bob White" brand of baking-powder is a "straight alum" powder. Our samples were purchased in the open market.

[9] This quantity of Al_2O_3 was selected empirically. It is less than the equivalent amount of aluminum which is often ingested by one person in the aluminized bread of an ordinary meal.

[10] Oxidation of the blood (Experiments 1-2) was effected by running the blood from a saphenous artery through a rubber tube directly into a tared Kjeldahl flask and weighing to determine the amount of available blood, then adding concentrated nitric acid solution and heating, *slowly* at first, and finally boiling, until the solution was clear. A moderate excess of nitric acid solution was then added and the liquid boiled down to a small volume. The fluid was then treated with a fairly large volume of concentrated sulphuric acid solution for the expulsion of the nitric acid and to complete the oxidation of *the residual* organic matter. When necessary, small quantities of ammonium nitrate were added from time to time to facilitate the oxidation process. The sulphuric acid mixture was boiled for at least two hours after it became colorless, in order completely to eliminate NO_2. The residue was then dissolved in water and *made up to volume*, and the iron and aluminum determined by the Mixer-Dubois modification of the Zimmerman-Rheinhardt method: Jour. Am. Chem. Soc., 1895, xvii, 405. With this method it was found that the blood of dogs is normally free from aluminum.

[11] In order to avoid any disturbing effects of general anesthesia a local anesthetic was employed in all the surgical operations. Less than 1 c.c. of a 2 per cent. solution of cocain was used at any one operation. In no case did the dog exhibit any sign of pain.

540 gm. of his blood were withdrawn. This quantity of blood contained the aluminum in 2.6 mg. of Al_2O_3.

Experiment 5.—A dog weighing 19 kilos was given 3.6188 gm. of alum (4 × 0.9047 gm.). Seven hours later, 787 gm. of his blood were subjected to analysis. This quantity of blood contained the aluminum in 10.9 mg. of Al_2O_3.

Experiment 6.—A dog weighing 17 kilos was given 2.7141 gm. of alum (3 × 0.9047 gm.). Five and three-quarters hours later, 736 gm. of his blood were analyzed. This quantity of blood contained the aluminum in 6.7 mg. of Al_2O_3.

Experiment 7.—A dog weighing 17.6 kilos was given 3.6188 gm. of alum (4 × 0.9047 gm.). Six and one-half hours later, 996 gm. of his blood were secured. This quantity of blood concontained the aluminum in 3 mg. of Al_2O_3.

Experiment 8.—A dog weighing 13.4 kilos was given 0.9047 gm. of alum *daily for eight days.* On the eighth day, six hours after the last dosage, the animal was bled to death. One thousand and fifty-eight (1,058) gm. of his blood were available. This quantity of blood contained the aluminum in 3 mg. of Al_2O_3.

Experiment 9.—A dog weighing 10 kilos was given 0.9047 gm. of alum *daily for eight days.* On the eighth day, five hours after the last dosage, the animal was bled to death and 996 gm. of his blood were secured. This quantity of blood contained the aluminum in 4.3 mg. of Al_2O_3.

In Experiments 10 and 11 aluminum was administered in biscuits baked with alum baking-powder. In these experiments (10 and 11) the dogs ingested portions of the same supplies of meat, lard and bone-ash that were available for the previous experiments; but, instead of cracker meal, they were given alum baking-powder biscuits, which were made of the ingredients that are specified in the summary in the first part of this section of the paper. The biscuits were very thoroughly baked.

Experiment 10.—A dog weighing 13 kilos was given daily, *for ten days,* about 5 gm. of alum baking powder (in baked biscuits). On the tenth day he was bled to death and 650 gm. of his blood were oxidized. This quantity of blood contained the aluminum in 2.6 mg. of Al_2O_3.

Experiment 11.—A dog weighing 11.1 kilos was given daily, *for nine days,* about 4 gm. of alum baking-powder (in baked biscuits). On the ninth day he was bled to death and 572 gm. of his blood were analyzed. This quantity of blood contained the aluminum in 1.5 mg. of Al_2O_3.

TABLE 2.—DATA SHOWING THE PASSAGE OF ALUMINUM FROM THE ALIMENTARY TRACT INTO THE BLOOD

Exp. Number	Weight of Dog (kilos)	Dose of Alum (gm.)	Time Between Dosage and Bleeding (hr.)	Weight of Blood Taken (gm.)	Total Weight of $FePO_4$ + $AlPO_4$ (gm.)	Weight of $AlPO_4$ (mg.)	Weight of Al_2O_3 from the Total Amt. of Blood Taken* (mg.)
1	24.5	0.9047	3	800	0.9644	3.2	1.3
2	24.4	1.8094	5	726	0.8820	4.5	1.9
3	24.5	3.6188	7	857	0.9450	14.1	5.9
4	13.4	1.8094	6½	540	0.7650	6.0	2.6
5	19.0	3.6188	7	787	1.0170	26.0	10.9
6	17.0	2.7141	5¾	736	1.3980	15.0	6.7
7	17.6	3.6188	6½	738	0.8960	7.0	3.0
8	13.4	0.9047	6	1058	1.1330	7.1	3.0
9	10.0	0.9047	5	996	1.0285	10.5	4.3
10	13.0	†5	6	650	0.7854	6.2	2.6
11	11.1	†4	7	572	0.5136	3.6	1.5

* See the second paragraph after the description of Experiment 11.
† Alum baking-powder in biscuits.

The essential data of Experiments 1 to 11, inclusive, are summarized in Table 2. The results there tabulated make it evident that aluminum passes into the blood in considerable proportions from alum in the diet. They also show that aluminum does not tend to accumulate in the blood.

These analytic data apply, of course, to the blood only at the moment of its removal from the body. Under the conditions of the experiments, it is certain that aluminum passed into and from the blood in much larger *total* quantities than those indicated. In Experiments 1 to 7, inclusive, the quantities of available blood ranged from 2.9 per cent. to 4.3 per cent. of the body weight. From three to four times as much aluminum as the quantity shown in the table was therefore contained in the whole volume of blood of the corresponding animal at the moment of bleeding (Experiments 1 to 7).

The results of Experiments 10 and 11 show clearly that the aluminum in alum baking-powder is not rendered wholly insoluble in the bread-baking process. Amounts of aluminum equal to some of those recovered after the administration of plain alum in powdered form (Experiments 1 to 9, inclusive) were found in the blood of the dogs that received the alum baking-powder biscuits.[12]

EXPERIMENTS SHOWING THAT ALUMINUM PASSES FROM THE BLOOD INTO THE FECES

The results of the foregoing experiments suggest that aluminum was not only absorbed from the gastrointestinal tract and distributed in the blood throughout the body, but also was eliminated fairly rapidly from the circulation. In considering the matter of its excretion from the body, we concluded to ascertain, first, whether aluminum passes into the feces after the parenteral introduction of aluminum chlorid.

The animals selected for four experiments in this connection were normal, vigorous dogs, weighing between 8 and 10 kilos. The daily diet was similar to that for the dogs in the first nine experiments. In each case the animal was kept on our standard diet for about ten days before feces were collected for analysis. Thereafter all the feces for the six days previous to the introduction of aluminum were carefully analyzed for aluminum.[13] *None was found in any instance in the feces passed prior to the corresponding injection.*

We selected aluminum chlorid as the salt for intravenous injection in these experiments, because it is probable that aluminum chlorid is produced from aluminized food in the stomach. A dilute solution, containing the aluminum equivalent of 0.9 mg. of Al_2O_3 per c.c. of physiologic saline solution, was very slowly

TABLE 3.—DATA SHOWING THE PASSAGE OF ALUMINUM FROM THE BLOOD TO THE FECES[1]

Experiment Number	Weight of Dog (kilos)	Amount of Aluminum Injected (calculated as mg. of Al_2O_3)	Dry Weight of Feces Eliminated During the Three Days Following the Injection (gm.)	Amount of Aluminum Found in the Feces During the 6 Days Previous to the Injection	Amount of Aluminum Found in the Feces During the 3 Days Following the Injection (mg. of Al_2O_3)	Percentage of the Injected Aluminum that Was Recovered
12	10.0	9	67.5	None	1.0	11.11
13	9.4	18	64.0	None	1.1	6.11
14	8.2	36	47.5	None	1.9	5.27
15	9.2	82.8	56.0	None	4.6	5.55

1. A dilute solution of $AlCl_3$ in physiologic saline solution was injected into a saphenous vein.

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[12] The reader is again reminded of the fact that special care was taken to subject the biscuits to very thorough baking.

[13] The feces (Experiments 12 to 15), prior to the precipitation of any aluminum contained in them, were incinerated in a platinum dish. The ash was dissolved in dilute hydrochloric acid solution. This solution was directly subjected to the analytic procedure described in Footnote 10.

injected into a saphenous vein.[14] That a portion of the injected aluminum passed from the blood into the feces under these conditions can be seen from the results of our four experiments, as summarized in Table 3.

V. GENERAL DISCUSSION

We found, in Dr. House's study of the effects of aluminum salts on germinating plants, that the aluminum ion is very destructive of protoplasm. Our results warrant the conclusion that aluminum is especially toxic to growing cells in general. That many plants contain traces of aluminum, and that some plants contain even larger proportions of that element, are well-known facts. That these proportions of aluminum occur in the living cells of plants, or that the aluminum exists in plants in soluble forms, remains to be shown, however. It is well known that the proportion of available aluminum in soluble form in fertile soils is very slight. Then, too, plants which happen to be exceptional in the matter of proportional content of aluminum are similar in that respect to animals which are unusual in their capacity to use advantageously such a poisonous element as copper. Thus the blood of the horseshoe crab contains a large proportion of copper in the form of a respiratory compound which is chemically and physiologically analogous to hemoglobin in the blood of the higher animals. No one would think of using this fact, however, as an argument in favor of the free introduction of copper sulphate into the human stomach, or its injection into the blood of a man, or its use in food. On the contrary, in spite of the fact that the blood of some animals contains copper, it is generally agreed that the administration of copper compounds to man and other mammals, even in minute quantities, induces poisonous effects. There is even less justification for the administration of substances containing aluminum.

We found in Professor Steel's experiments that when alum was administered in aluminum-free food to dogs, or when dogs ingested biscuits baked with alum baking-powder, aluminum in comparatively large amounts promptly passed into the blood. This result was obtained in each of eleven experiments. The daily diet in each of the first nine of these experiments was a full meal of hashed lean beef, cracker meal, lard and water, in quantities sufficient to maintain both constancy in weight and equilibrium in nitrogen metabolism. This diet contained bone-ash in a quantity sufficient to induce daily movements of comparatively dry, inoffensive fecal matter.[15] In the last two of these eleven experiments, biscuits made with alum baking-powder were substituted for the cracker-meal.

In spite of the presence, in the food, of these large proportions of protein and bone-ash, and of the tendencies of these materials to form insoluble products with alum, our data show that aluminum occurred in soluble form in the gastro-intestinal tract in each case of alum administration and was absorbed into the blood. It is especially important to note that this result was also obtained in the analogous experiments with the biscuits made with alum baking-powder. The biscuits had been more thoroughly baked than the bread which commonly appears on the market. The tendency of the baking process to transform the aluminum in the baking powder into an "insoluble modification" was carried to an extreme that is rarely equaled in every-day life. Nevertheless, absorption of aluminum occurred.[16]

Two objections might be raised against this conclusion regarding the absorption of aluminum from the gastro-intestinal tract into the blood. It might be assumed that our analytic method was inaccurate. Such an assumption is always in order in the consideration of any method, for none is perfect. Our preliminary work with the analytic method employed and the checks against error that were instituted, give us complete confidence, however, in the practical accuracy of the process. If slight and unavoidable errors occurred, we believe that, from the general nature of the method, they must have caused loss of aluminum and consequent diminution of the numerical result, rather than the reverse.

It might also be urged that our figures representing the amounts of aluminum which passed into the blood are too small to mean anything. It might be thought that the proportions are too minute for the causation of deleterious effects. It might even be suggested that such small proportions of aluminum are beneficial because of the possible "stimulating" action which traces of poisons frequently induce. But none of these assumptions could be shown to accord with the whole truth in the matter. The amount of aluminum in the blood at any *moment*, after the ingestion of aluminized food, is but a fraction of the quantity that may occur in the blood of the individual during a given hour or a given day—larger quantities circulate throughout the body meanwhile, under such conditions. Excretion seems to occur continuously in cases of this kind. If the aluminum which is thus carried into the blood were of any value to the organism it is improbable that the absorption of a minute proportion of aluminum would be promptly followed by the elimination of much of it. The prompt excretion of aluminum under such circumstances implies a decided physiologic repugnance.

We found, further, that absorbed aluminum circulated freely, but, as it did not show any pronounced tendency to accumulate in the blood, it is obvious that its full effects must have been registered outside of the circulation. The organism "tolerates" a great amount of injury, but it has not been shown that the development of tolerance for aluminum is either a common achievement or a desirable attainment.

It should not be forgotten that the influence of a given substance must be considered, in its practical aspects, from the standpoints of actual conditions attending its introduction into an organism. What are its effects on individuals, for example, who are temporarily ill or permanently diseased? Again, what effects are registered in a perfectly healthy individual, who takes a small quantity of the substance under consideration with similarly small quantities of equally toxic or even more noxious materials? What, for instance, may be said of the effect of aluminum from bread made with an alum baking-powder, when the bread is eaten with butter colored by a "coal-tar" dye, with jam sweetened by saccharin, with soup made from "stock" preserved by sodium salicylate and salicylic acid, with peas greened by copper sulphate, with vegetables kept from spoiling by sodium benzoate and benzoic acid, in one case, by borax and boric acid in another, to say nothing of other deleterious substances such as formaldehyd, sulphurous acid, sodium sulphite, "ether flavors," and the like, in various portions of an ordinary meal as it may happen to be served. Even if it may be reasonably urged that the effects of any one of these "foreign" substances "in the quantities eaten" are negligible, who can say that their collective action after such a meal is of no physiologic consequence? We frequently hear its said with assurance that "people go on eating all these things without ever knowing it, and yet where is the case of damage done by any of these products?" But may it not be asked in turn: Are not many cases of illness probably due to the effects of such substances in food quite unknown to those who ascribe the sickness in any instance to a different cause? It is easy to understand that relatively very slight absorption of aluminum, day after day, may ultimately (as in chronic auto-intoxications) develop biochemical incoordinations leading to perverted function, defective structure, decreased resistance to disease, or other undesirable modifications of one or more qualities or parts of the body. How many people have been obviously injured by saccharin, for example? Perhaps millions have eaten it without noting any hurtful result. Nevertheless, saccharin has recently been officially declared a dangerous sweetening agent because it does exert injurious influences, and its use as a sweetener will soon be prohibited by law. Yet, if this decision had depended on authentic reports of cases of sickness arising from the ordinary use of saccharin as a sweetening substance, its prohibition would probably never have been announced! So it is with aluminum. Alum baking-powder may be injuring thousands without affording any obvious sign of injury. While doubt remains, its use should be avoided.

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[14] The wound healed promptly in each case.

[15] This diet, with its contained bone-ash, has been given daily to dogs in this laboratory for nearly ten years with perfectly satisfactory results. Published reference has frequently been made to the physiologic advantages of this diet and to the utility of the bone-ash given with it.

[16] This observation accords fully with Professor Mallet's findings on the solubility of aluminum from aluminized bread in the stomach, as described on a preceding page.

Professor Steel found that, when aluminum chlorid was administered intravenously in very small doses, from 5.55 per cent. to 11.11 per cent. of the aluminum passed from the blood into the feces during the three days immediately after the injection. Whether this fecal aluminum passed directly through the walls of the intestine or was excreted by the liver, or whether both channels (or others) were followed, has not yet been ascertained. The possibility that the fecal excretion of aluminum takes place by way of the bile is now under direct investigation in this laboratory.

That absorbed aluminum may be distributed to all of the tissues, and that such aluminum may accumulate there, to some extent, is a probability which has been considered but which has not yet been adequately investigated. We have already inaugurated a study of this particular problem and hope to continue the investigation until the essential facts regarding the distribution of aluminum and its possible accumulation in parts of the organism can be definitely and clearly established. We have not yet studied the quantitative excretion of aluminum in the urine.

We have supposed that when aluminum enters the blood it combines there, in part at least, with protein. We have lately prepared various aluminum-protein products. Their qualities promise to reveal the combination tendencies of aluminum when it is absorbed into the blood and carried to the tissues.

Discussion of the toxic symptoms induced in animals by aluminum will be reserved for a future consideration.

I believe the foregoing observations justify the general conclusion that, unless it can be shown definitely, and beyond a reasonable doubt, that aluminized foods are harmless, the use in food of such aluminum carriers as alum baking-powders should be prohibited by law in the interest of conservation of the best of our natural resources—the public health.

437 West Fifty-Ninth Street.

A NEW OPERATION FOR URETERAL ANASTOMOSIS

A PRELIMINARY NOTE: ANASTOMOSING THE PROXIMAL END OF A DIVIDED URETER INTO THE SIDE OF THE URETER OF THE OPPOSITE SIDE *

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I am carrying out some experimental work on an operation for anastomosing the proximal end of a divided ureter of one side with the side of the ureter of the opposite side, with the idea of saving if possible a sound kidney in individuals in whom the lower end of the ureter is badly injured or diseased as in the following conditions; namely, when the lower end of the ureter is destroyed in operations for stricture of the ureter, or in the removal or dislodgement of an impacted ureteral calculus (especially when there is a large amount of inflammatory exudate so that the ureter is apt to be too badly injured to be repaired); when the ureter is involved in disease of the pelvic structures, or otherwise injured during operations performed in the pelvis, when the continuity of the ureter cannot be restored or implanted into the bladder; and when necessary for the correction of certain urinary fistulas involving the ureter. Implanting the ureter into the intestine is unsatisfactory and the formation of a urinary fistula by stitching the ureter to the skin is undesirable unless it is absolutely necessary.

I performed this operation for the first time on a colored male cadaver in the dissecting room of the Medico-Chirurgical College, in the following manner:

The abdominal cavity was open in the median line and the ureters were exposed by making longitudinal incisions, about one inch in length, in the parietal peritoneum over each ureter as it crosses the brim of the pelvis. The right ureter was drawn up and cut at a point about two inches from the bladder. The distal end was tied with silk thread. A pair of closed hemostatic forceps was passed through the incision in the parietal peritoneum over the left ureter and gently pushed across in front of the sacrum, loosening the parietal peritoneum and pushing it forward until the point of the instrument emerged through the incision made over the right ureter. (The parietal peritoneum can be elevated even more easily by using one's fingers.) The proximal end of the right ureter was then grasped with the forceps (or one may do so with the fingers), and drawn across in front of the sacrum and behind the parietal peritoneum to be anastomosed to the side of the left uterer. The ureteral anastomosis was then completed according to the method of Van Hook, except, of course, it was an end-to-side and not an end-to-end anastomosis. The anastomosis was made by grasping the sides of the left ureter with small dissecting forceps; the walls of the ureter were thus separated and a small longitudinal opening in the ureter was made with a pair of small, sharp-pointed scissors (or one may use a scalpel) without injuring the posterior wall of the ureter. A single thread of silk armed with two straight needles was used for the anchoring suture.

The needles were introduced from within the lumen of the proximal end of the divided ureter and brought out on its anterior wall about two or three millimeters from the cut end. Then the little slit in the wall of the other ureter was held apart with small dissecting forceps,

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* Read before the Philadelphia County Medical Society, June 14, 1911. From the Laboratory of Experimental Surgery Medico-Chirurgical College.

thus opening its lumen, and the two threaded needles were passed into its lumen and brought out on its anterior wall two or three millimeters below the end of the incision. The end of the ureter was then drawn into the other ureter and the suture tied. A suture was passed through the edges of the incision in the ureter and the wall of the other ureter at the upper end of the incision and one or two interrupted stitches were also passed through the outer coats along the sides of both ureters, forming the anastomosis. The incisions in the parietal peritoneum covering the ureters were then closed, and the operation was completed by closing the abdominal wound. If the divided ureter is too short to form the anastomosis the intact ureter may be lifted from its bed and drawn over slightly to form the union.

After performing the operation on the cadaver, I performed it on a dead dog and followed this by operating on live dogs. In the dog the serous coat of the ureter is stripped up with the ureter and carried with it; the same thing can be done on the human ureter except the peritoneum is not so adherent, and then it would be necessary to close the rent in the peritoneum caused by lifting the ureter. In this case, it would be possible to carry the ureter across in front of the peritoneum covering the sacrum, and the peritoneum could then be closed about the anastomosis.

There is one thing that those who have worked on the ureter have found—at least, it is my experience—that the ureters tolerate very little traumatism as necrosis and perforations take place under seemingly slight injury to the serous coat.

As the practical application of this procedure depends not only on its immediate results but also on its ultimate effect—that is, on the kidneys, ureters, etc.—I shall give the result in a future communication.

This operation must be thoroughly tried on animals before considering its employment on human beings, as all experimental operations on the ureters have been disappointing. At the present time it seems to me that nephrectomy under such conditions as I have mentioned above is still probably the best procedure.

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A CASE OF POTASSIUM CHLORATE POISONING

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Damage by borrowed medicine is frequently met. The following is an instance:

May 21, 1911, I was called to see a twenty-day-old baby with the following history: The mother knew of a neighbor's having some medicine that I had prescribed about a year previous for sore mouth, borrowed it and used it in large amounts locally on the membrane of the baby's mouth, and internally. She said that the child became irritable and began to vomit. Gradually the skin became blue in color and the stain of urine and fecal matter on the napkins became black. When I first saw the child it was cyanotic, very irritable and apparently had abdominal pain. The skin over the entire body was a deep yellow black. The conjunctivæ were yellow and the eyes had lost their luster. There was vomiting and the napkins were stained almost black. No urine for laboratory examination could be obtained. The pulse was 190. The child's condition on the second day was much worse. The pulse was 208 and temperature 99.5. The respiration was short and jerky. To Dr. Whyte, of Watertown, Wis., who was in town and who kindly consented to see the case, and to me, it seemed as if the child would surely die. The mother was very faithful in carrying out directions for elimination and on the third day the pulse fell to 180 and the deep color of the skin showed signs of fading. May 26, the color had markedly diminished and the urine began to clear. The child, however, vomited occasionally and developed a diarrhea which improved after the administration of a dose of castor oil and the withholding of all food for twelve hours. The pulse was then 140, temperature, 99. June 22, the child was back again in normal condition.

From the clinical findings, from the condition of the urine and feces, and from the history of giving potassium chlorate, the case appears to have been one of poisoning. The treatment was purely eliminative. The child was sponged frequently, given plain boiled water by mouth and rectum, put in bed near an open window and kept absolutely quiet. The second day a dose of atropin sulphate, 1/3000 grain, was given every two hours, because of its recent recommendation in collapsed condition of infants. Whether or not it did any good, I cannot say. The drug would seem contra-indicated because of the increasing pulse-rate and checking secretion. Had I had an infant stomach-tube, I should have washed out the stomach. It is possible that the reason the condition became worse on the second day was that the stomach had not been completely emptied and the cathartics failed to do what lavage could do. The child made a perfect recovery, however. This report, which, I think, illustrates the reckless use of drugs among the laity, may be of service to some one.

RUPTURE OF LEFT RECTUS MUSCLE

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History.—About 1 p. m., July 16, J. C., an intelligent Austrian, aged 40, was pushing a heavily loaded truck from the platform of an elevator. The elevator platform was several inches above the floor so that when he pushed the truck on to the floor, it rebounded and struck him in the abdomen. Pain and distress were marked at the time, but passed off and the patient worked the rest of the afternoon. On the morning of July 17, he reported at the office complaining of an intense pain over the site of the injury. He walked in a stooped position which seemed to ease the abdominal distress.

Examination.—The patient was well muscled and nourished. Examination indicated a moderate degree of arteriosclerosis; the pulse was 110, but of good volume and tension; temperature was 99.1. The abdomen was exquisitely tender over a spot about 2 inches square, ½ inch below and 1 inch to the left of the umbilicus; there was rigidity and a noticeable swelling at this point, and tenderness on both deep and superficial pressure.

The patient was sent to the hospital and an ice-bag applied, but by July 18 pain had increased, rigidity and tenderness had become more localized and swelling had increased. Notwithstanding a good bowel movement, an exploratory laparotomy was decided on. There was no scratch, abrasion or ecchymosis of the skin of the abdomen at any time.

Operation.—July 18, an incision was made over the swelling; as soon as the rectus muscle was reached, a considerable quantity of dark blood and recent clots welled up into the incision. The hematoma was wiped out, and the left rectus was found to be torn completely across and badly lacerated. The sheath of the muscle was intact, the peritoneum was opened, but no injury to any hollow viscus found. The muscle was sewed to the sheath and the bleeding points ligated. The abdomen was closed with drainage. There was a good recovery.

As before stated the man was pushing a heavy load and both recti were contracted to their full extent, this probably accounts for the rupture of this muscle without other internal injuries.

Therapeutics

EPIDEMIC CEREBROSPINAL MENINGITIS: SPOTTED FEVER

The present generation of medical practitioners has witnessed no greater revolution in the therapeutic measures employed in a disease, nor in the results following the use of such new treatment, than has taken place during the last five years in the case of epidemic cerebrospinal meningitis. This disease, also known as spotted fever, and more concisely designated as epidemic meningitis, is an infectious disease characterized by a purulent inflammation of the inner covering of the brain and spinal cord. It has been known to medical observers for about a century, and has been recognized as a terrible affliction, and dreaded by the profession and the laity alike.

Weichselbaum, in 1887, described an organism which he found in this disease, to which the name *Diplococcus intercellularis meningitidis* was given, and which has also been known by the shorter designation of meningococcus. Jäger, in 1895, demonstrated that this organism is the cause of epidemic cerebrospinal meningitis. It is found in the cerebrospinal fluid in well-developed cases of the disease. It is an organism of rather delicate vitality, and its activity seems to be impaired by fresh air and sunshine. It is sometimes found in the crypts of the tonsils and pharynx of persons who do not have an acute attack of the disease. It is probably transmitted through the secretions from the nose and mouth, and is received in this way by persons who subsequently become ill with the disease.

It has been found rather difficult to demonstrate the directly contagious nature of the disease. It was for many years the custom to admit patients with the disease to the wards of general hospitals, and for a long time it was believed that new cases did not arise from cases so present in the wards. Later, more careful observation has seemed to show that occasional cases do arise in wards from direct transmission, so that at the present time it is customary not to admit patients with this disease to the general wards of the hospitals, but to send them to hospitals designed especially for contagious and infectious diseases.

Approximately 15 per cent. of the patients with this disease are children under 2 years of age (and about 60 per cent. are children between the ages of 2 and 15.

Predisposing causes to this disease seem to be unhygienic surroundings and "crowd poisoning." In other words, it seems most likely to occur in epidemic form in cold weather and among children who are living in crowded apartments where there is but little sunlight, and where the windows are kept closed to keep the apartments warm. While it sometimes seems that a debilitated state of the system predisposes to this disease, it is also true that during epidemics some robust and apparently very well children acquire the disease.

An epidemic does not seem to spread out or develop from a single focus, but, like influenza, may attack people in different parts of a region at the same time.

Not infrequently the infection has been found to start from the pharyngeal tonsil, and thus enter the cranium through the sphenoid bone, and then along the vessels through the sphenoidal foramina into the base of the brain and sella turcica. Some investigations have seemed to show that the infection traveled along the lymph-channels rather than the blood-channels, and these investigations did not show that the infection went through the cribriform plate of the ethmoid.

In an acute attack of the disease the organs most affected are the meninges of the brain and spinal cord. The pia-arachnoid membrane is most affected, and it may show all grades of inflammation, but there is almost always more or less purulent exudate. The pus varies greatly in amount, and some parts of this membrane may be more affected than other parts. The region where there is the greatest amount of inflammation and pressure is indicated by peripheral nerve signs. As soon as there is exudate enough to cause pressure, the pressure alone accounts for many of the symptoms. The exudate does not, as a rule, penetrate into the brain or spinal cord tissue, but by pressure on the nerves at the base of the brain or spinal cord causes local paralysis.

At post-mortem examinations in this disease, the pia mater will be found covered with thin, yellowish pus, and there may be small petechial hemorrhages on the surface of the brain. The ventricles are also generally found filled with an exudate. The rapidity with which this condition can take place and cause death in some fulminating cases makes it one of the most serious diseases that we have to treat.

Although manifestations of this disease in its acute variety is limited to the cerebrospinal system, if the disease is protracted, there is hardly a part of the body that may not become affected. The lymph-glands and spleen generally do not enlarge, and metastatic abscesses do not occur, but pleurisy, pneumonia, endocarditis, pericarditis, nephritis, arthritis, neuritis, blindness and deafness can occur, to say nothing of later signs of cerebral degeneration.

The symptoms, as in all infectious disease, vary greatly in different cases. Sometimes the disease is so mild as not to confine the patient to bed. In other instances the patient is sick, but not seriously so, and soon recovers. These cases are distinguished as abortive cases, and no doubt they are frequently the direct cause of the inexplicable spread of the disease. The majority of cases, however, are very serious. The temperature is irregular; it may be high, if there is a condition of irritation or excitement of the nervous system, or may be low, if there is a condition of shock. The pulse is often very irregular; rapid if the patient is alert, and slow and gradually weakening, if the patient is in more or less stupor. Often the first symptoms are a slight congestion of the nose and throat and perhaps of the conjunctivæ, and often slight deafness. There may be some pains referred to the joints and lower extremities. There may be intense backache, shoulder pains and pains down the arms. There is always severe headache, with soon more or less stiffening of the muscles of the back of the neck. There is irritability, restlessness, often photophobia, and before the deafness perhaps a hypersensitiveness to aural impressions. In some instances the initial symptom may be a severe convulsion followed by unconsciousness. Such a case is of course a severe one. In some instances the nervous symptoms are preceded by a chill, followed by a quick rise in temperature.

The secondary symptoms depend entirely on where the greatest inflammation is located in the cerebrospinal axis and where the first pressure and the greatest pressure from exudates is exerted. Motor symptoms due to irritation of the roots of the motor nerves are early seen. These are, besides the rigidity of the muscles of the back of the neck and sometimes of the trunk, the so-called Kernig sign. This consists of an inability to extend the leg in line with the thigh, the latter having been flexed at a right angle with the body, without causing pain and contraction both of the muscles of the leg and of the back.

Besides the above symptoms, disturbances of the stomach and intestines are frequent, and reflex, or projectile vomiting, due to cerebral irritation, is a common symptom. There is generally constipation due to retarded peristalsis; often retraction or flattening of the abdominal wall. Petechial spots occur in about 25 per cent. of these patients, and are more or less distributed over the body. This gives the name to the disease of spotted fever. There is frequently observed the so-called *tache cérébrale,* which consists of a red mark which persists for several minutes after the finger-nail has been rubbed across the skin; or it may occur on the face on the side on which the child may be lying. Delirium is a frequent and early symptom, and is generally succeeded by coma, if the disease does not abate or the pressure of the exudate on the brain is not removed. The pupils are generally at first contracted due to the irritation, then often become unequal, and later, if the disease progresses to exudate and pressure, are dilated and will not then react to light.

If the pressure on the floor of the fourth ventricle and on the medulla becomes increased, the pulse becomes slow and intermittent, and Cheyne-Stokes respiration occurs.

After recovery there is often a lingering stiffness of the muscles, stiffening of the joints, maybe neuritis, and maybe some deafness, and, as above stated, there may be actual deterioration.

The discovery of the *Diplococcus intercellularis* as a cause of this disease, and this germ being almost invariably found in the spinal fluid obtained from lumbar puncture, when the disease is present, makes a presumptive diagnosis require the backing of the bacteriologic fact. In hospitals lumbar puncture is an exceedingly simple matter, but in private practice a physician may not think it immediately advisable, even if he has the technical knowledge to puncture the spinal canal properly, to apply this test, even if some symptoms look meningeal. However, if the meningeal symptoms are positive, or if doubtful symptoms do not in a few hours clear up, lumbar diagnostic puncture should be done.

While the most characteristic symptoms, when they are present, of a cerebrospinal meningitis are the early occurrence of a convulsion, with fever, and rigidity of the muscles of the back and neck, accompanied by projectile vomiting, headache, and photophobia, a correct diagnosis of the particular germ that is causing the disease can be made only from a lumbar puncture.

At the beginning of an epidemic, or when sporadic cases are encountered, the possibility of the occurrence of this disease is frequently overlooked, and a diagnosis of some other form of disease may be made and even persisted in until the death certificate has been written. On the other hand, in the presence of an epidemic of the disease, it frequently happens that other diseases are mistakenly called epidemic meningitis, until irrefutable evidence proves that it is not.

The diseases with which epidemic meningitis are most likely to be confounded are lobar pneumonia, gastro-intestinal intoxication, anterior poliomyelitis, otitis media, encephalitis, and typhoid fever. Besides these, other forms of meningitis which are not caused by the meningococcus must be taken into account in making the differential diagnosis. The most common of these diseases is tuberculous meningitis. Less common forms are the pneumococcus meningitis, streptococcus meningitis, and influenza meningitis.

Where the symptoms are less striking than in the group which is enumerated, the difficulty of diagnosis is often very great, and can be made only by a careful examination of the patient and by a gradual exclusion of other diseases. In every case, if possible, lumbar puncture should be done, and by examination of the fluid so obtained a definite diagnosis can generally be promptly made. The fluid is, as a rule, somewhat turbid, and the meningococcus can generally be found. Polymorphonuclear cells are also usually present.

Since the discovery, in the Rockefeller Laboratory, by Flexner and Jobling, in 1908, of the antimeningitic serum, there seems to be but one way of treating the disease, viz., by the injection of this serum. The working rule is as follows: When the presence of this disease is suspected, a lumbar puncture should at once be made. If the fluid obtained is turbid, the serum should at once be administered. This is usually done with a syringe and through the same needle through which the cerebrospinal fluid has been obtained. It is customary to inject an amount not larger than has been withdrawn. This is usually about 30 c.c. While some prefer to inject with a syringe, others prefer to administer it through a glass funnel connected with the needle, believing that in this way they are less likely to produce injurious pressure on the central nervous system, which has sometimes been observed. These injections are generally repeated daily until four injections have been made, unless the patient is obviously convalescent before the later injections are due. If the patient grows worse after the first injection, a second may be given after twelve hours instead of waiting twenty-four. If the first injection does not show positive benefit, a larger amount, 45 c.c., may be given at the second injection. After the four injections it is customary to wait for two or three days, and, if the symptoms are still serious, to give another series of injections.

Previous to the introduction of this serum the mortality from the disease seems to have been practically about 75 per cent., although various observers, basing their conclusions on a limited number of cases, have represented the mortality to be less than this. Under the use of the serum, the mortality, taking a large number of cases together, has been reduced to about 25 per cent. Comparing small groups of cases, it is found that the earlier the injections are commenced, the less the mortality. The results obtained in children under 2 years of age are not so good as those obtained in older children, from 2 to 15 years of age. However, this representation of the improved statistics of mortality does not give a complete picture of the advantages to be obtained from the serum treatment. While these statistics indicate a very greatly increased benefit as regards the prevention of death, they do not show, what observers constantly report, the very great improvement in the results obtained by treatment, in that fewer patients become chronic invalids from hydrocephalus, from deterioration of mental power, and from deterioration of the general health. Under the old forms of treatment the condition of many who did not die was so bad that it was frequently said that the patient who died was more fortunate than the one who lived. The blindness, the deafness, the localized paralysis, the impaired mentality which were commonly seen in patients who recovered under old forms of treatment, are rarely seen after recovery from the serum treatment. The duration of the disease also is greatly lessened by this treatment.

Under old forms of treatment cases frequently persisted for weeks or months. Now such cases are rare.

Besides the specific treatment, the child's throat should be sprayed, or he should gargle with an antiseptic such as hydrogen peroxid solution in dilution of 1 part to 5 of warm water. The nostrils should be sprayed and cleansed with a warm, weak alkaline solution such as a diluted liquor antisepticus alkalinus. The eyes, if there is conjunctivitis, should be bathed with boric acid solutions. Painful joints should be wrapped up in cotton, and the child's body and limbs should be placed in the position that causes the least pain and is found the most comfortable.

A calomel purge should be given, followed perhaps by a gentle saline. If there is vomiting or entire loss of appetite, food should not be urged for the first two or three days, as the child is better without it. Plenty of water should be given him. If vomiting persists and nausea is severe, and especially if there is severe pain, morphin should be given to the point of relieving these symptoms. The amount and frequency depends on the age of the child and the intensity of the pain. It should be remembered that there is no more excuse for allowing a child to suffer pain than there would be for trying to compel an adult to suffer pain. The morphin should be administered hypodermatically. If the pain is not severe, bromids or chloral will cause much-needed sleep, muscle relaxation, and nerve rest, all of which three factors are exceedingly necessary in any meningitis.

After the first day or two, the simplest nutriment, in small amounts should be given, at three-hour intervals. The best nutriment for this disease is milk, oatmeal gruel, egg albumin, and later on, meat juice.

The medicinal treatment that will aid in relieving the inflammation caused by the disease while the antitoxin is combating the specific germ, is ergot, administered hypodermatically. This drug quiets cerebral excitement and delirium, contracts the blood-vessels, especially of the central nervous system, and can be contra-indicated only when the heart is excessively active and the blood-pressure high. If such contra-indication was present, the symptoms would be relieved by nitroglycerin, or better, by blood-letting. Such a contra-indication, however, is rarely present, and the ergot should be given intramuscularly into the deltoid, or into the calves of the legs if many injections must be made. The amount advisable is a hypodermic syringeful of a good aseptic ergot; this dose for an adult. A child of ten should receive half this dose, 1 c.c. (15 minims), and a child five years old one-fourth of this dose (7½ minims); or each a proportionate part of a more concentrated solution of ergot as occurs in an aseptic ampule. This dose should be repeated in three hours, if there seems to be no action from it, and then after that once in six hours until there is a marked improvement of the symptoms. The ergot not only acts satisfactorily on the nervous system in relieving congestion and quieting the patient, but also increases and prolongs the action of any dose of morphin which it is necessary to give. In other words, less morphin need be given for severe pain in meningitis if ergot is given coincidently. If the injection of ergot causes temporary local pain and swelling, an ordinary wet dressing of 1 part of alcohol to 3 or 4 parts of warm water bandaged over the part will soon cause relief. If the skin is properly cleaned and the needle and syringe aseptic, and the preparation of ergot a good one, there will never be an abscess.

Alcohol is never indicated; neither should any drug that would excite the brain or spinal cord be given, such as quinin, strychnin, caffein, etc.

A very useful local treatment is ice. The ice-cap to the head and the spinal ice-bag, if the child will allow it, is certainly good treatment. If the child will not allow these cold applications, or if the child is young and is easily depressed by an ice-cap on the head, or if the temperature is low, and especially if the patient is stupid, hot sponge baths are better than ice applications. The more the blood is brought to the surface of the body, the less will be the internal congestion.

Besides the lumbar puncture for diagnostic purposes and for the injection of the antitoxin, the relief of cerebral pressure from lumbar puncture should not be forgotten, and many a life has been saved, before the antitoxin was discovered, by one or more removals of this extra fluid allowing relief from dangerous pressure and coma. In other words, prolonged coma from pressure should not be allowed, if its removal by way of the spinal canal is possible. It is quite probable, however, at times when lumbar puncture is not satisfactory, if properly done, that a purulent plug has stopped the free exit of fluid from the brain to the spinal canal.

The general care of the patient is the same as for any serious illness. The sick-room should be a large, thoroughly ventilated room, quiet if possible, and not too dark. It is better properly to shade or even screen the patient's eyes and allow the sun to enter the room. No talking, no unnecessary noise, and no officiousness of nurses or parents should be allowed to occur. The feet should never be allowed to become cold. The bowels should be moved daily, after the first purging, in the easiest possible manner, perhaps with a glycerin suppository. An albuminuria may occur, but it requires no special treatment, except possibly the administration of more water to cause the urine to be less concentrated. Also, if albuminuria occurs, ice applications to the back should probably be stopped.

As soon as the patient begins to recover, the ergot is of course stopped, and an iodid seems advisable. It seems to be a clinical fact that small doses of iodid aid in the resorption of exudates. At any rate, they apparently work only for good. Sodium iodid is the salt that should be selected, and the dose should be small, not more than 0.10 gm. (2 grains) three times a day, for a child 5 years old. Large excessive doses of iodid are absolutely not indicated in any meningitis, unless it is syphilitic.

Convalescence calls for iron in small doses, and possibly for some bitter tonic. The patient should remain in bed at least a week after the cessation of all active symptoms. Later convalescence should be very slow, and the resumption of any work or duty postponed as long as possible. Any muscles or joints that are stiff should receive massage, and any paralyzed muscles should be given electricity soon, lest they atrophy. The early applications, however, should be mild, lest too much stimulation be given to the nervous centers. If there are later any adhesions in or around joints, chloroform should be administered and they should be forcibly broken up.

Derivation of the Word Epilepsy.—The word "epilepsy" is derived from the Greek. The original word in that language was *epi lambeino*, meaning "to fall on." The original spelling more nearly approached the Greek word than does the present; instead of "epilepsy" it was "epilency." Trevisa, in 1398, writing of it as was the custom in the fourteenth century, spelled it epilency.—E. L. Hunt in *Medical Record*.

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EPIDEMIC DROPSY

The so-called "epidemic dropsy" of India first attracted attention in 1877, when an outbreak took place in Calcutta. The succeeding few years witnessed a somewhat limited spread of the disease, but it apparently died out completely, and for about twenty years no fresh cases were reported. In 1901, however, cases clinically similar to the earlier ones were again observed in Calcutta, and in the following decade the disease attained such importance as to cause a government investigation. A report of the results obtained so far has been made recently by Greig,[1] and his findings are of considerable interest in view of the close similarity shown by this affection to beriberi.

Although some resemblance between epidemic dropsy and beriberi had long been noted, the infrequency of peripheral neuritis in the former led some observers to consider it an entirely distinct disease, and indeed its clinical aspects would seem to warrant such a conclusion. The most constant and characteristic symptom, as the name indicates, is the marked edema, for the most part confined to the skin and subcutaneous tissues, though the serous cavities also are invaded in severe cases. The occurrence of neuritis is noted by different observers, but all agree that it is by no means so important a feature of this disease as of beriberi. Greig calls attention to the fact that the clinical picture resembles very closely that of "ship beriberi," in which dropsy is the chief symptom, and neuritis of relatively secondary importance. Besides ship beriberi, the "prison dropsy" of the early part of the nineteenth century also bears marked resemblance to the Indian affection.

The investigation attacked the problem on several distinct sides. Although the non-infectivity of epidemic dropsy has been commonly acknowledged, this was made the subject of experimental work, with entirely negative results. Monkeys inoculated with freshly obtained blood gave no evidence of infection, and all attempts at isolation or observation of a peculiar organism in blood, urine, feces and dropsical effusion were unsuccessful. The distribution, too, of the epidemic gave evidence of its non-infectiousness. Practically all cases occurred among Bengalis, while the Marwaris (Hindus) living in the heart of the affected portions of the city remained almost wholly free from the disease. So, too, none of the better class of Europeans contracted it; and although in the hospitals no attempt at segregation was made, no dissemination to other patients occurred. A map giving the distribution of the fatal cases illustrates these features strikingly. Five of the more populous wards were either wholly free from fatal cases or almost so. Of these, two are inhabited mainly by Marwaris, and the remainder form the European quarter of Calcutta, while the heavily affected wards are those occupied by the Bengalis. Such a distinction might, of course, argue for racial susceptibility, were it not for the fact that Eurasians and poor Europeans at times contract the disease, and that a much more obvious and probable explanation is forthcoming.

In the dietary of the Bengalis rice is the predominant feature, supplemented to some extent by "ata"—finely sifted wheat flour. The Marwaris, on the other hand, live mainly on the pulse-grains, and the varied diet of the well-to-do European needs no comment. Since the advent of steam mills into India, the rice is for the most part polished, with the result that the phosphated elements of the grain are largely removed, as is also the case with the wheat flour used by the Bengalis. The pulses are comparatively rich in phosphatic elements, and a comparison between the typical dietary of a Marwari and a Bengali shows from three to four times the amount of phosphoric anhydrid in the former as in the latter.

Additional evidence in favor of dietary one-sidedness as a cause of the disease is afforded by the fact that those among the Bengalis who most frequently eat meat—the men, and children of both sexes—showed the fewest fatalities, while among the adult females, who eat meat seldom, they were much more numerous, and among the widows, who by religion are allowed no meat, deaths were most frequent. Animal experiments, too, showed the harmful effects of the Bengali dietary. The symptoms so produced, however, resemble those of beriberi more closely than epidemic dropsy, and are similar to those observed by previous investigators.

As to the epidemic character of the affection, Greig notes that the outbreaks occur at the time of high food prices, and cease coincidently with the fall in food values. The Bengali, he considers, lives normally in a state of "nutritional instability," and it needs only the extra strain of famine to overwhelm the balance and bring on acute disease.

Why, with causes apparently so similar, the disease should differ to such an extent from beriberi in symptomatology, is difficult to say. The fact may be of significance that Megaw,[2] in reporting cases of epidemic dropsy observed in Eurasians and poor Europeans, gives neuritis as a marked and constant symptom. So it is possible that race, or such minor dietetic difference as may result from it, may be a factor in this phase of the subject.

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[1] Scientific Memoirs by Officers of the Medical and Sanitary Department of the Gov. of India, 1911, p. 45.

[2] Megaw: Indian Med. Gazette, 1910, xlv, 121.

PELLAGRA

Medical and press reports indicate the increasing prevalence of pellagra in different sections of the country. From Kentucky, Tennessee, North and South Carolina and Georgia come reports of increasing numbers of cases, some of them in localities where the disease had not previously been detected. These reports in all probability mark the annual recrudescence of the disease, and indicate that it is increasing from year to year, at least in some localities, and at a rate that demands serious consideration.

The evident increase in the number of cases, the high mortality attending the disease, and the lack of knowledge regarding its etiology and prevention, have created some feeling of alarm among the people of infected localities lest the disease might become widely epidemic. Judging from the experience of Italy, such an event is not impossible, since in that country the disease, soon after its appearance, became wide-spread and was attended by a high rate of mortality.

Accurate data regarding the prevalence of the disease in this country would at the present time be of the greatest value, but unfortunately these are not available since in only four states is pellagra required to be reported, and in only one of these are such reports required by law. Were these data available for the period since pellagra was first reported in the United States, it is probable that some idea would be gained as to the extension of the disease, and some light might also be thrown on the etiology and other phases of the problem.

No appreciable advances have been made in our knowledge of etiology and prevention in the recent past. The maize theory of the origin of the disease appears to be attracting less attention on the part of students of the disease. Sambon's hypothesis regarding the agency of flies of the genus *Simulium* appears as yet to have few supporters in this country, although Roberts[1] of Atlanta in a recent paper states that, from observations made in his section, conditions are very similar there to those described by Sambon in Italy where the disease prevails.

Alessandrini of Rome, on the other hand, attributes pellagra to a water-borne trematode of the genus *Filaria*.

Neither of these interesting views as to the parasitic origin of the disease has been confirmed. In fact, definite knowledge regarding the etiology of pellagra is utterly lacking, and the problem is one, therefore, that calls for urgent study and early solution.

Any true estimate of the significance of pellagra in the United States and its importance in future must be based largely on knowledge of its cause. The adoption of adequate preventive measures also depends on this factor.

The practically universal view of the non-contagiousness of pellagra renders quarantine inadvisable and unnecessary, and so far as known this measure has not been adopted by experienced authorities in their struggles against the disease. That health authorities and physicians generally are alive to the necessity of vigorous action, however, is shown by the interest taken by them in the subject. On the other hand, press reports and editorial comments indicate that the public is becoming much exercised over the situation. In an editorial in one of the southern papers,[2] the situation in North Carolina is referred to as alarming, and the medical profession is called on to devote more of its time and thought to the problems involved.

On the whole, the pellagra situation must be viewed with serious concern. The disease has been reported from more than thirty states, its area is extending, and its presence is a menace to the physical and mental integrity of large numbers of people. *It therefore* becomes one of the most, if not the most, important public health problem of the present, and as such, adequate provision should be made for its thorough investigation by federal and state health authorities.

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[1] Roberts, S. R.: THE JOURNAL A. M. A., June 10, 1911, p. 1713.

[2] Danville (Va.) Bee, July 29, 1911.

THE FRENCH MARRIAGE LAWS

As mentioned[1] by our Paris correspondent, Dr. Bertillon, *chef de travaux* of the municipal statistics of Paris, believes that the success of the present French marriage laws in promoting marriage shows how much laws can do to improve social customs and conditions, and thereby justifies legislation to promote increase in the birth-rate. An "administrative nihilist" of Herbert Spencer's school would perhaps have said that the results of the change in the law showed how much law could do to hamper social progress, since the improvement noted since 1907 seems to be due to the removal of burdensome formalities and restrictions with which the old law surrounded marriage. We are inclined, on the whole, to agree with Dr. Bertillon; but in the operation of the old law and the new we see, in addition, how much legislators can accomplish which they did not desire or foresee.

The French ideal of the family has, to most English-speaking people, an archeologic interest. We ourselves look on the family in the stricter sense as normally subject to growth and decay during a single generation. It comes into existence with a marriage; it has its fullest bloom while the children of that marriage are under their parents' care; it begins to undergo autumnal decadence as those children leave the home circle to found families of their own or to live their independent lives; and it comes to an end with the death of the parents or last remaining members of the home circle. In the ancient world, on the other hand, the family was immortal, or as nearly so as pious care could make it. The *patria potestas* never lapsed; the personality of the head of the family might change, but there always was an absolute head. Individual members of the household might die, but the family existed from generation to generation, held together under one central authority, united by common interests and common experiences.

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[1] THE JOURNAL, June 10, 1911, p. 1734.

Something of this antique permanence and solidarity it was the object of the French law to preserve in the French family. That law and custom both were instrumental in rendering family ties especially strong and permanent in France is the testimony of the French themselves and of foreign observers best qualified to judge. The marriage law contributed to this end by requiring candidates for marriage, whatever their age, to produce either the consent of their parents or proof of their death. It is true that the law did permit a son or daughter of marriageable age to dispense with the parents' consent after going through a process known as *sommation respectueuse;* but this was considered "respectful" only in name. Sooner than subject a parent to such an indignity, any right-feeling French son or daughter would submit to lifelong celibacy; in fact, the scandal of an irregular union seems to have been less dreaded in some instances than that of a *sommation respectueuse* to the parents of one or the other of the pair. Thus, while on the one hand the old law was indeed most powerful in preserving the old family ideals (within, apparently, a sphere constantly narrowed by the celibacy of those whom it prevented from marrying), on the other hand it lent a kind of desperate sanction to those irregular households which could not be called families. And thus perhaps is partially explained the apparent contradiction between the views of those who consider the French the embodiment of all the domestic virtues and those who find in them the antithesis of all domesticity.

The ancient ideal of the French family, beautiful as it is in many aspects, seems an anachronism, and attempts to preserve it longer by artificial means would have been as disastrous as the attempt to preserve the Macedonian phalanx in modern warfare. The simplification of the French marriage law has apparently come none too soon. The old form of the family, admirable as it was in its own day, could be preserved in this age only at the cost of growing demoralization.

Current Comment

"H. L. HARRIS" AND DR. WILEY

Our old friend, "H. L. Harris," is again "on the job." The newspaper editors over the country are receiving a stock letter signed "H. L. Harris," the tenor of which is to the effect that Dr. Wiley is not the efficient public servant most people think he is. After explaining what a negligible quantity Dr. Wiley is in the enforcement of the Food and Drugs Act, H. L. Harris delivers himself of this gem:

> "There is really no danger to health and life from partaking of adulterated condiments, etc., and the bulk of food which mankind consumes, such as bread, meat, potatoes, fresh vegetables, fresh fruits, nuts, etc., never has been adulterated. . ."

Many newspapers know the true inwardness of Mr. Harris' communications. Some newspapers do not. As we have explained to our readers on several[1] occasions, "H. L. Harris" is one of the names under which the press agent for the borax trust—The Pacific Coast Borax Co., 100 Williams Street, New York City—writes. He sometimes uses the name "H. H. Langdon" and on the stationery which carries this name, calls himself a "Food Expert," and writes from a different address—427 West 22nd St. A few years back many medical journals printed H. L. Harris' articles on "Food Preservatives" under the belief that the author was a chemist instead of a publicity agent for the manufacturers of chemical food preservatives. After the reading pages of the medical journals were closed to this form of advertising, "H. L. Harris" sent letters to the newspapers on the subject of ptomain poisoning. Every case of alleged ptomain poisoning reported in the newspapers was collected by the borax concern and a stock letter signed "H. L. Harris" was immediately dispatched to the newspaper containing the report. These letters addressed "to the editor" first referred to the case of poisoning that had been recorded and then went on to tell how many thousands of cases of ptomain poisoning there had been since the pure food law had prohibited the use of borax in foods! Of course, it may be remarked, there is no particular reason why manufacturers of chemical preservatives should not send out articles to the daily press extolling their wares and criticizing the government officials who are trying to protect the public against those who would sell "medicated garbage" as foodstuffs. There is an excellent reason, however, why such articles should bear the name of the concern in whose interest they are written and not the variable cognomen of a "publicist." If the Pacific Coast Borax Co. should send out, on its own stationery, a letter signed by the company, stating: "We think Dr. Wiley a very undesirable man for the position of Chief of the Bureau of Chemistry, and we are fully convinced that borax is one of the most harmless and necessary ingredients of foodstuffs"—if, we say, such a letter were sent to newspapers there would be no grounds for criticism. But unfortunately, food dopers don't do business that way.

THE SANATORIUM AND THE DISPENSARY IN TUBERCULOSIS WORK

In a communication in this issue, Lawrason Brown calls attention to the need of accurate figures to prove or disprove the value of sanatorium and dispensary treatment of tuberculosis in its ultimate results. With the tremendous number of consumptives throughout the country it is impossible that all should be treated in sanatoriums, and besides, the solution of the economic problems involved are almost impossible by any state or community. Many private sanatoriums have been established for the treatment of tuberculosis, and a number of states have also established institutions of this sort. Besides these, lodges and philanthropic societies have also established sanatoriums for the purpose. On account of the large number of patients who need this sort of treatment none can remain long in these institutions, and whether they secure permanent benefit in a sufficient number of cases to justify our faith in the method, there are no accurate figures to show. Consumption is not cured in a few months. It requires three, four or even five years to effect a cure, whereas few consumptives stay in sanatoriums longer than six months. To overcome this difficulty, dispensaries have been established really more for the guidance and advice of patients and their families than to give individual treatment with the hope of cure. These dispensaries have no doubt done much good in the way of informing the patient as to the proper mode of life and habits for him to follow both for his own good and for the protection of those with whom he comes in contact. They have been the means, also, of aiding in the early diagnosis of many cases in patients who would otherwise have gone to physicians or to sanatoriums too late for much good to be done them in the way of care or treatment. But it is important to know accurately what the results of this treatment are. It is not the statistics covering the results of a few months of treatment, but the ultimate results, which constitute the actual test of the value of the treatment. Our correspondent, therefore, makes a plea for concerted work by sanatoriums and dispensaries in treating and following up these patients for a considerable period of time to ascertain the exact value of the treatment in saving the lives of consumptives. The sanatorium and dispensary idea has been gone into quite enthusiastically, and much money and energy are being spent by public and private charity for this form of treatment, without exact knowledge of its ultimate value.

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[1] Editorially in The Journal A. M. A., Oct. 5, 1907; Feb. 13, 1909; Jan. 1, 1910; March 12, 1910. Some of this matter has been reprinted in leaflet form and will be sent on receipt of stamp.

COMPULSORY NOTIFICATION OF POLIOMYELITIS

At present, twenty-three states require that the health authorities be notified of cases of infantile paralysis. Other states will no doubt soon be in line. While the disease in epidemic form has prevailed in some countries of Europe for a longer time than in this country, and notification has been and is required, France seems to be one of those in which this has not been a requirement of the health authorities. The Paris Academy of Medicine, a little while ago, appointed a committee to consider the question of the propriety of obligatory notification of acute anterior poliomyelitis. On the recommendation of this committee, the academy advises that notification be made compulsory and that it should apply not only to typical cases, but also to doubtful ones, and furthermore, that it should be made at all times even in the absence of an epidemic. It is also recommended that children who have been in close relation with patients suffering from the disease be forbidden attendance at school for three weeks and that disinfection of the rooms at the termination of the disease be undertaken. Although the exact cause of this disease and the precise method of its transmission have not been determined, yet its infectious nature is so well established by clinical observation and experiment that compulsory notification is justified and should be required wherever the disease exists.

Medical News

CALIFORNIA

Medical Shop for Hospital.—Dr. Charles E. Zerfing, police surgeon of Los Angeles, is planning the establishment of a medical shop in the basement of the Receiving Hospital, in which will be made all the apparatus and equipment necessary to be used in all cases of emergency surgery. During the last year more than 21,000 patients were treated in the Receiving Hospital.

The Campaign Against Squirrels.—Dr. Friench Simpson, U. S. P. H. and M.-H. S., the federal expert in charge of the squirrel extermination campaign for the Visalia district, reports that in more than one hundred places under reinspection in the district, fifty were found to be absolutely free from squirrels. Assurance was given that while it will require several years of persistent effort squirrels can finally be exterminated.

Personal.—Dr. George W. Lasher, Los Angeles, is reported to be critically ill with cerebral hemorrhage at the home of Dr. William F. Perry, Los Angeles.——Dr. William W. Cross, Fresno, has been placed in charge of the branch of hygienic laboratory of the State Board of Health at Fresno.——Dr. Edwin B. McKillop of the Los Angeles County Hospital was struck by a car and painfully injured August 11.——Dr. Harold A. Miller and Dr. James A. Ellis have resigned as members of the Alameda Board of Health.——Dr. Henry C. Peterson, Stockton, has returned from abroad.——Dr. J. Perry Lewis, San Diego, fractured his leg and clavicle while cranking his automobile August 8.

COLORADO

Personal.—Dr. Maynard C. Harding, Ault, has been placed in charge of the Medical Mission of the Presbyterian Board at Soon-Chun, China.——Dr. William W. Arnold has been elected president of the Indiana Society of Colorado Springs.——Dr. Willis G. Mudd has been appointed a police surgeon of Denver.

New State Board Members.—Dr. Arnold Stedman has been appointed a member of the State Board of Health to succeed Dr. Lewis E. Lemen, Denver; Dr. James R. Arneill, Denver, to succeed Dr. Josiah N. Hall, Denver, and Dr. Charles S. Morrison, Colorado City, to succeed Dr. Vivian Russell Pennock, Longmont.

State Medical Society Meeting.—The forty-first annual meeting of the Colorado State Medical Society, held in Steamboat Springs, August 15 to 17, resolutions were unanimously adopted endorsing the policy and the work of Dr. Harvey W. Wiley, Chief of the Bureau of Chemistry of the Department of Agriculture, Washington, D. C. Pueblo was selected as the next place of meeting and the following officers were elected: President, Dr. Walter A. Jayne, Denver; vice-presidents, Drs. William F. Singer, Pueblo, Horace C. Dodge, Steamboat Springs, Frank L. Dennis, Colorado Springs, and Benjamin B. Beshoar, Trinidad; secretary, Dr. Melville Black, Denver (reelected); treasurer, Dr. George W. Miehl, Denver; publicity committee, the secretary and Dr. Edward Jackson, Denver; councilors, Drs. Jacob C. Chipman, Sterling, and Arthur G. Taylor, Grand Junction, and delegate to the American Medical Association, Dr. Hubert Work, Pueblo.

ILLINOIS

Inspection of Dairies.—An inspection of all dairies in the state, containing four or more than four cows, is being made by Dr. Charles E. Crawford, Rockford, chief inspector of the State Board of Health and his assistants, and on its completion the board will have an original report on every dairy in the state and full information as to its sanitary condition.

Personal.—Dr. Joseph P. Pecival has retired from the superintendency of the Cook County institutions, Dunning; the institutions are at present under the care of Dr. Carl F. W. Eberlein, assistant physician.——Dr. Chauncey Sherrick has been made chairman and Dr. Edward L. Mitchell a member of the committee of arrangements for the dedication of the new Monmouth Hospital.

Money for Children's Home.—It is announced that James A. Patten, Evanston, has donated $10,000 toward the purchase of a building for the Frances Juvenile Home Association, Chicago. The object of the home is to care for children afflicted with contagious or infectious diseases, and is intended to supplement the work of Cook County Hospital. The capacity of the home at present is fifteen, but the plans contemplate the accommodation of two hundred patients.

Conference of Charities and Correction.—The sixteenth annual State Conference of Charities and Correction will be held in Urbana, Ill., October 21 to 24. The social hygiene section will hold a mass meeting in the University of Illinois auditorium Sunday afternoon, at which Drs. Woods Hutchinson, New York, and George F. Butler, Chicago, and Mrs. Albion Fellows Bacon of Indiana will speak. In the evening Dr. Charles Henderson of the University of Chicago will deliver the conference address. Monday afternoon the county farm superintendents will hold a meeting, presided over by Mr. William C. Graves, formerly secretary of the Illinois Board of Charities: at the superintendents' meeting in the evening Hon. L. Y. Sherman, president of the State Board of Administration, and Chief Justice Harry Olson of the Chicago Municipal Court will speak. The exhibits are expected to be on a large scale.

Chicago

Personal.—Dr. F. Curt Harnisch sailed for Europe August 22.——Dr. Alexander H. Ferguson, who has been seriously ill, is reported to be improving.——Dr. Charles F. Yerger was operated on recently and is reported to be doing well.——Dr. I. S. Trostler has taken charge of the *x*-ray laboratory of St. Joseph's Hospital.——Dr. B. Barker Beeson has returned from Europe.

New Sanitarium.—One hundred and sixty acres of land has been purchased west of Rose Hill Cemetery, for the new municipal tuberculosis sanatorium, on the building and grounds of which about $1,000,000 will be expended. Harlow N. Higginbotham is chairman of the committee which has the matter in charge. The law under which the sanatorium is being erected empowers any municipality in the state to raise funds for such purposes, if the people by referendum vote so decide.

Industrial Care of Tuberculosis.—The Chicago Tuberculosis Institute in its August bulletin calls attention to the efforts made by the institute during the last two years to interest large employers of labor in the physical examination of their employees with a view to reducing the amount of tuberculosis. The firm of Sears, Roebuck & Co. erected a six-bed cottage at the Edward Sanitarium, Naperville, about two years ago, for the care of their employees suffering from tuberculosis. At the same time they put into practice a system of examination for all employees who showed traces of the disease.——Montgomery Ward & Company built a model six-bed open-air cottage at the same institution for the care of their employees.——The International Harvester Company has adopted the plan of Dr. Theodore B. Sachs for the systematic examination of employees in manufacturing establishments. The list of suspected tuberculosis patients will include employees in whom the diagnosis of tuberculosis has previously been made; employees whose poor general condition, in connection with other suspicious symptoms suggest the presence of the disease; employees with histories of protracted cough and expectoration and employees in whose families tuberculosis exists, or in which a death from the disease has recently occurred. Dr. James A. Britton and Miss M. J. Flannagan have been placed in charge of the special tuberculosis clinic to be inaugurated for the benefit of the employees of the company. The institute announces that it is now ready, through its advisory committee, to act in an advisory capacity with other large employers of labor to secure a more general adoption of the plan proposed.

INDIANA

Isolation Hospital for Military Post.—The War Departmen has ordered that an isolation hospital be established at Fort Benjamin Harrison, near Indianapolis.

Daily Bulletin.—The City Board of Health of Indianapolis has begun the publication of a *Daily Bulletin,* touching on health subjects; thus far bulletins on care of infants, sewage, garbage cans and house flies have been issued.

State Association Meeting.—The meeting of the Indiana State Medical Association will be held in Indianapolis, September 28 and 29, under the presidency of Dr. Frederick C. Heath, Indianapolis. United States Senator Robert L. Owen of Oklahoma, and Dr. William Welch of Johns Hopkins University, are announced as special speakers on the program.

Personal.—The farm home of Dr. Simon P. Scherer, near Noblesville, was destroyed by fire August 10, the loss amounting to about $9,000.——Dr. Hugh T. Montgomery, the oldest practitioner of South Bend, announces that he will soon retire.——Dr. Charles S. Goar, Indianapolis, who has been ill for several months as a result of an automobile accident, is reported to have recovered sufficiently so that he can take out-door exercise.

Health Officers' Authority Limited.—The Attorney-General of Indiana has given an opinion to the State Board of Health at the request of Dr. Eric A. Crull, health officer of Fort Wayne, that a health officer in the absence of an ordinance giving him such powers is not vested with the authority of a police officer. Dr. Crull desired to know whether he has the right to go out and make arrests for violation of the health laws or whether he should depend on the police.

Increase in Poliomyelitis.—Infantile paralysis increased markedly during the month of July, thirty-seven cases having been reported to the State Board of Health. The secretary of the board is in communication with the State Board of Health of Illinois in an endeavor to locate the origin of the epidemic. The focus last year was Fowler, Ind., from which several cases have been reported this year, with a spread of the disease in a southeasterly direction. Shelby County hogs have been afflicted with a similar disease and in Carroll County a cow had the same symptoms. The Rockefeller Institute has been asked to carry on experiments in regard to the transmission of the disease from animals to man.

Sanitary Survey.—The State Board of Health is conducting a sanitary survey of the region along the Ohio River on account of the increased amount of disease in that vicinity. Statistics show that the death-rate is higher along the Ohio River than in the interior of the state, due to the amount of typhoid fever. In the town of Rockport the highest death rate is shown, which is 34.4 deaths per 1,000. The death-rate from typhoid alone at Vevay is 134 per 100,000. The Ohio River from the Ohio line to Louisville shows fecal contamination. From the examination of samples of well water, shallow wells, taken from widely scattered communities throughout the state, Dr. Barnard, the State Food and Drug Commissioner, asserts that fully 50 per cent. of the shallow wells in Indiana are polluted and impure for drinking purposes. White River, which flows through Indianapolis, is polluted by sewage. The mayor is cooperating with the city board of health in an effort to establish a municipal sewage disposal plant.

MARYLAND

Personal.—Dr. Charles H. Diller, Detour, was operated on for disease of the intestine, August 23.——Dr. James M. Goodman, Frederick, had a man arrested for blocking the road and not allowing him to pass while on his way to see a patient. The man was held under $50 bonds to the grand jury.——Dr. James L. McCormick, Trappe, has been adjudged insane and committed to the Springfield State Hospital.

Baltimore

Herter Lectures.—The annual Herter Lectures will be delivered October 4, 5 and 6, by Prof. Dr. Albrecht Kossel of t University of Heidelberg, who was awarded the Nobel pri last year for important discoveries in medical chemistry.

Personal.—Capt. Robert P. Bay, M.C., N.G., Md., assigned Fifth Infantry, has been made chief surgeon with rank of major, and assigned to the First Brigade, vice Maj. Alexius W. McGlannan, resigned.——Dr. Gustav A. Thiede has been appointed a health warden vice Dr. George B. Scholl, resigned.——Dr. George Heller has recovered from his recent severe illness.

MISSOURI

Headquarters Established for Tuberculosis Society.—The uchanan County Society for the Relief and Prevention of Tuberculosis has established permanent headquarters at 2137 South Sixth Street, St. Joseph, where reports will be received, or information may be obtained, regarding the treatment of tuberculosis.

Personal.—Dr. M. C. Stone, Kansas City, has been appointed state bacteriologist to succeed Dr. Newton McVey.——Dr. Albert H. Myerdick, formerly city dispensary physician of St. Louis, has been appointed physician to the State Penitentiary at Jefferson City, succeeding Dr. James A. Waterman, who has been recently appointed superintendent of State Hospital No. 4, Farmington.——Dr. Price, assistant physician at State Hospital No. 3, Nevada, has resigned and will practice in Independence.——Dr. J. R. Van Atta has been appointed pathologist to the Kansas City General Hospital, vice Dr. M. C. Stone.——Dr. Albert B. Stone, Lamar, has been appointed a member, and elected secretary, of the Barton County Board of Health.

Hospital Staff Named.—The following medical and surgical staff is announced for the Kansas City General Hospital, for the year beginning September 1: superintendent, Dr. Louis W. Luscher; attending surgical staff, Drs. Jabez N. Jackson, John F. Binnie, John M. Frankenburger, Hermann E. Pearse, Jefferson D. Griffith, Howard Hill, Ernest F. Robinson and William D. Foster; attending medical staff, Drs. John L. Robinson, Charles C. Conover, Robert T. Sloan, Frederick McK. Lowe, Franklin E. Murphy, Hugh D. Hamilton, Arthur C. Leonard and Scott P. Child; consulting staff: pediatrics, Drs. Clay S. Merriman, Frank C. Neff and Jesse E. Hunt; orthopedics, Drs. C. B. Francisco and Robert McE. Schauffler; gynecology, Drs. George B. Norberg and C. Lester Hall; otology and laryngology, Drs. Flavel B. Tiffany, Andrew W. McAllester, Jr., and Joseph S. Lichtenberg; dermatology, Drs. Halsey M. Lyle and William Frick; neurology, Drs. John Punton and Henry O. Hanawalt; attending physician, Dr. G. Wilse Robinson; assistant attending physician, Dr. Rush E. Castlelaw; skiagraphy, Drs. Edward H. Skinner and Oliver H. McCandless; obstetrics, Drs. Caleb A. Ritter and George C. Mosher; genito-urinary diseases, Drs. Ernest G. Mark and F. M. McCallum; pathologists, Drs. William K. Trimble and Edward L. Stewart; oral surgery, Dr. Harold P. Kuhn, and dentists, Drs. W. T. Stark and H. B. McMillan.

NEW YORK

Changes at Matteawan.—Dr. James V. May, the newly appointed superintendent of the Matteawan State Hospital for the Criminal Insane, assumed charge of the institution August 14.——Dr. Raymond F. C. Kieb, first assistant physician at the Dannemora State Hospital, has been appointed temporarily as first assistant physician at Matteawan.——Dr. Dr. John W. Russell, for sixteen years a member of the staff of the Willard State Hospital, has been appointed assistant physician at Matteawan.

To Prosecute Cold Storage Men.—Following investigations made by state inspectors in the larger cities the State Health Department has made public a statement that there are millions of pounds of butter, eggs, poultry and fish held in cold storage beyond the limited time and in a condition unfit for food. The Brennan Cold Storage Law, in addition to limiting the time during which food may be kept in cold storage, provides that food once exposed for sale shall not be restored and that all storage food must be labeled with the date of its receipt in storage and of its delivery therefrom, and that when sold, it shall be represented as cold storage food. The most flagrant violations of this law have been found in New York, Syracuse, Albany, Utica, Rochester and Buffalo. The offenders will be prosecuted and the State Department of Health will use all its powers to see that the law is enforced in the future.

New York City

Addition to Hospital.—The new addition to the Margaret Fahnestock Training School of the New York Post-Graduate Medical School and Hospital is completed, and the building now provides accommodation for 139 nurses.

Cholera Steamer in New York Harbor.—Cholera caused three deaths on the steamer *Re d'Italia* which arrived from Naples and Palermo, August 17. Two other passengers in the hospital show signs of the disease. The steamer is detained in quarantine, pending examination of the passengers.

Work of the Diet Kitchen Association.—This association has more than 1,500 babies under its care and has dispensed as much as 24,650 quarts of milk in a week. It supports nine milk stations and renders efficient help to the board of health. There has been practically no mortality among the babies cared for by this organization this summer.

Ridding City of Stray Animals.—The Society for the Prevention of Cruelty to Animals has been busy since June 1 gathering up homeless cats and dogs. During a single night as many as 866 cats have been captured. Since August, 12,500 have been caught and since the beginning of the work 113,186 animals have been collected. It is generally admitted that cats may be carriers of disease and the crusade has seemed necessary on this account.

No Public Cups After October 1.—A new sanitary code ordinance will go into effect on October 1, which abolishes drinking cups in all public places, public schools, railroad stations and theaters. School children will have to furnish their own cups and it will be considered a violation of the law for any person to loan his or her cup to another. In order to assist in this movement a large department store is making a free distribution of several hundred thousand pocket drinking cups to school children.

Personal.—Dr. H. C. Cohen, ambulance surgeon of the J. Hood Wright Hospital, suffered a dislocation of the shoulder and serious injuries of the head and face in a collision between the ambulance on which he was riding and an Amsterdam Avenue car.——Drs. William Linder and O. Kruskal, Brooklyn, have returned from Europe.——Dr. Frederick L. Flynn, Bronx, Brooklyn, was injured August 19, in a collision between his automobile and a milk wagon.——Dr. Hoffman, ambulance surgeon at the Bellevue Hospital, was injured in a collision between his ambulance and a street car, August 23.

The Typhoid Situation.—For the week ended August 26, sixty new cases of typhoid fever were reported in the Borough of Manhattan as against eighty-eight for the previous week. In the Bronx there were thirty-one new cases reported as against forty-seven for the previous week. During the past month there have been thirty-five cases reported from the Roman Catholic Asylum in the Bronx. The investigations of the health department seem to indicate that the milk and water-supply cannot be held responsible for the outbreak in the Bronx, and that it is probable that flies and mosquitoes have been instrumental in spreading the infection. Some of the cases in Manhattan have been traced to the milk supply.

Hospitals Under New Charter.—The proposed new charter for the city of New York provides for the transfer of Bellevue and the Allied Hospitals from the present trustee system to a commission to be appointed by the mayor. This would be a reversion to the old state of affairs and the condition of the hospitals is so much better under the present system that there is much opposition to this proposed change. At a recent hearing on this phase of the charter many charitable and philanthropic organizations appeared against the change but no one spoke in its favor. Representatives of some of these charities urge all who are interested in the welfare of the sick poor or in the hospitals to use their efforts to obtain the defeat of this provision at the coming session of the legislature.

NORTH DAKOTA

Personal.—Dr. Arthur A. Husser, Berthold, fractured two ribs and sustained serious bruises in an automobile accident near his home August 20.——Dr. Benjamin R. McAllister, superintendent of the State Hospital, Jamestown, has resigned and will practice at his old home at King City, Mo.

PENNSYLVANIA

State Meeting.—The Medical Society of the State of Pennsylvania will hold its annual convention in Harrisburg, September 25 to 28, under the presidency or Dr. John Boyce Donaldson, Canonsburg.

Making Progress on Sanitarium.—More than 100 men are now employed on the State Tuberculosis Sanitarium at Creson, and the first building, the dining hall, is now nearly completed. It is a two and a half story structure in the form of a Maltese cross. The east ward, administration building and power plant are also in course of construction.

Philadelphia

Bequest.—The executors of the estate of Max Bamberger have sent $10,000 to the Jewish Hospital Association and $5,000 to the Jewish Foster Home and Orphan Asylum.

Cholera Suspects.—The North German Lloyd Steamship Brandenburg from Bremen, arrived at Philadelphia, August 23, and was placed in quarantine because of a case of suspected cholera in a second cabin passenger.

Addition to Hospital.—Plans are being prepared for a three-story addition to the Northwestern General Hospital. The annex is to be in the rear of the present hospital building and will contain a dispensary, an operating room and private rooms.

Typhoid Traced to Milk.—The report of contagious diseases to the health department gives a total of fifty-eight typhoid fever cases, of which five were reported from the Twenty-second ward and nine from the Thirty-second ward. These were traced to milk infection and steps have been taken to cut off the supply of infected milk.

Memorial Tablet Unveiled.—A bronze tablet, to mark a bequest by the late Mrs. Estelle P. Melville, wife of Rear Admiral George W. Melville, was unveiled in the women's ward of the Episcopal Hospital on August 21. The tablet bears the following inscription: "Comfort the Sick. In memory of three sisters—A. V. Palis Truitt, Melina Palis and Estelle Palis Melville." The bequest endowed three beds in the ward.

City Babies for Adoption.—The children's wards of the Philadelphia General Hospital are so overcrowded that Dr. Joseph G. Neff, Director of the Public Health and Charities, has advertised in the German and Italian newspapers of the city for foster mothers, who will receive $3 per week and carfare for a certain period. Each woman will be obliged to report weekly with the child after it has been placed in her care and both will be examined.

Gift of Gymnasium.—Jacob Disston, who recently donated the site of the old Disston residence at Tacony to the city of Philadelphia for use as a public playground, has made an additional gift of $10,000, which will be utilized in making a model playground, erecting an up-to-date gymnasium, the construction of which was begun August 24. The building is to be of brick. two stories in height, 40 by 40 feet, with two one-story wings, 29 feet 6 inches by 33 feet.

Infant Mortality Declines.—Nearly one-third of the deaths of the city for the week ending August 26 were of children under 2 years of age. The total number of deaths was 464 and the total of children under 2 years was 149, of which 104 died of enteritis. But despite these figures the infant mortality in the city for the first three weeks of August was reduced 36 per cent., as compared with the corresponding period of last year. This is accounted for by the fact that the milk supply has been greatly improved by refrigeration in transportation, by better equipment of hospitals and by the city's corps of visiting nurses. In the first three weeks of August, 1910, there were 688 deaths of children under 5 years and in the same period of this year there were 434.

Personal.—Drs. Penn Gaskell Skillern and William W. Keen have sailed for Europe.——Dr. John F. McCloskey was badly injured in an automobile accident on August 18.——Dr. Herbert A. Bolan, who sustained a concussion of the brain from a fall, August 22, is recovering.——Dr. Gertrude A. Walker has recently given to the hospital connected with the Women's Medical College of Pennsylvania $1,000 for the endowment of a baby's crib in the College Maternity.——Dr. Herbert A. Bolan suffered a cerebral hemorrhage August 21, and was taken to the Presbyterian Hospital.——Dr. John F. McCloskey had three ribs broken and sustained severe contusions and scalp wounds when his automobile ran into a fallen tree, near Philadelphia, August 19.

WASHINGTON

State Meeting.—The annual meeting of the Washington State Medical Association will be held in Spokane, September 7, 8, 9, under the presidency of Dr. Wilson Johnston, Spokane. A public meeting is to be held under the auspices of Dr. J. B. Anderson, city health officer.

Personal.—Dr. George T. Boyd, Palouse, fractured his right arm, August 2, while cranking his automobile.——Dr. Frank A. St. Sure, formerly of Madison, Wis., has been appointed surgeon for the Chicago, Milwaukee and Puget Sound Railway at Ellensburg.——Dr. William L. Hall, Spokane, who recently fractured his ankle, is recuperating at his orchard home in Green Bluff Prairie.

Antituberculosis Association Election.—At the annual meeting of the Washington Association for the Prevention and Relief of Tuberculosis the following medical men were elected to office: president, Dr. Christen C. Quevli, Tacoma (reelected); vice-president, Dr. Wilson Johnson, Spokane; secretary, Dr. Walter C. Lippincott, Seattle; and directors the president and Drs. James R. Yocom, Tacoma; William S. Durand, Everett; Cornelius J. Lynch, North Yakima; Edward B. Nelson, Spokane; William C. Cox, Everett; James Sutherland, Spokane; Elmer E. Heg, Seattle; Eugene R. Kelley, Seattle, and Dr. Lee M. Ganson, Odessa.

GENERAL NEWS

Missouri Valley Physicians to Meet.—The twenty-fourth annual meeting of the American Academy of Ophthalmology ley will be held in Omaha, September 7 and 8, with headquarters at the Rome Hotel, under the presidency of Dr. Donald Macrae, Council Bluffs, Ia.

Eye, Ear and Nose Specialists to Meet.—The sixteenth annual meeting of the American Academy of Ophthalmology and Oto-Laryngology will be held in Indianapolis, September 25 to 27, with headquarters at the Claypool Hotel, under the presidency of Dr. John J. Kyle of Indianapolis. Dr. Albert Gray of Glasgow, Scotland, will be the guest of the academy.

Pathologists and Nurses Wanted for Philippines.—The United States Civil Service Commission, Washington, D. C., will send to those interested circulars concerning vacancies. To a bacteriologist and pathologist at Manila a salary of $2,000 is offered. An examination will be held September 23. The same commission desires trained nurses for the Philippines and the Indian Service.

Meeting of Pure Food Departments.—At the annual convention of the Association of State and National Pure Food Departments, held in Duluth, Minn., August 21 to 24, Seattle was chosen as the site of the next meeting, and a telegram expressing confidence in Dr. Harvey W. Wiley, and promising support of his official acts was ordered sent to the President. The following officers were elected: Lucius P. Brown of Tennessee, president; H. E. Barnard, C. H. Billingsby and Joel G. Winkjer, Jr., vice-presidents; W. M. Allen, secretary; James Faust, treasurer; and Edwin De Barr, and Dr. Samuel J. Crumbine, Topeka, Kan., and Dr. Charles D. Woods, executive committee.

International Municipal Congress.—The preliminary program of the International Municipal Congress and Exposition to be held at the Coliseum in Chicago, September 28 to 30, announces the following general subjects for discussion: September 28, morning, "Methods of Controlling a Milk Supply;" afternoon, "Control of Contagion and School Inspection;" September 29, morning, "Protection of Water and Disposal of Sewage;" afternoon, "Yard Sewage and Slaughter Houses;" evening, "The Law in Relation to Health Work;" September 30, morning, "Disposal of Garbage;" evening, "Cost of Health Department Per Capita." Dr. William A. Evans, former health commissioner of Chicago, has been appointed chairman of the Health and Sanitation Division of the congress.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Aug. 18, 1911.

The Sanitary Situation with Regard to Cholera

During the last session of the permanent commission of the superior council of hygiene, which was held a few days ago under the presidency of Dr. Roux, director of the Pasteur Institute, M. Mirman reported the sanitary situation with regard to cholera. He emphasized especially the fact that aside from some isolated cases which have occurred in the departments of Bouches-du-Rhône and l'Hérault (THE JOURNAL, Aug. 19, 1911, p. 667), no case of cholera has appeared in France, notwithstanding various recent reports in the papers, which may be due to the instructions issued by the government that every case of choleriform diarrhea shall be examined and treated as a suspected case of cholera. Cases of choleriform diarrhea are particularly numerous this season, and the newspapers, judging from imperfect information, have concluded that these cases were cholera. The commission passed a resolution that all possible means of publicity be used to remind the public, in all cities where cases of summer cholera appear, of the utility of boiling water for drinking and of eating vegetables only when cooked and of taking all precautions of individual hygiene.

Moreover, as a precaution, the minister of the interior has just prohibited the pilgrimages to Lourdes. The sanitary situation in l'Hérault where Lourdes is situated has, however, become satisfactory. The epidemic has disappeared and the few cases reported during the last few days are progressing toward recovery. At present there is only one epidemic focus, which is that at the insane asylum at Marseilles, but there the conditions make isolation as effective as possible.

Dr. Doyen and Foot-and-Mouth Disease

For some time an epidemic of foot-and-mouth disease has been raging in several departments, owing to the reluctance of cattle owners to report cases and to isolate the affected animals. Dr. Doyen has made use of this occasion to seek notoriety once more. Unfortunately Dr. Doyen is not content with the deservedly high reputation which he enjoys as a skilful surgeon, but periodically breaks forth in the daily papers with sensational accounts of miraculous cures that he alleges he has obtained in all kinds of infectious diseases and in tuberculosis especially by the employment of a certain *solution phagogène* of his own preparation. From the beginning of the present epidemic of foot-and-mouth disease Dr. Doyen has been asking from the minister of agriculture letters to the prefects of the infected departments authorizing him to carry on treatment of foot-and-mouth disease by his *solution phagogène*. The minister of agriculture complied and Dr. Doyen, after having carried on a series of experiments, has addressed an open letter which is of course reproduced in all the daily papers, in which he declares that "foot-and-mouth disease is definitely conquered" and that the application of his treatment "is going to end infallibly in the revision of the rules of the sanitary police." At the same time with this letter, however, there were received at the ministry of agriculture reports from the presidents of the agricultural committees and letters from farmers stating that the results obtained by Dr. Doyen, although satisfactory in part, ought to be received with much reserve. The agricultural department, therefore, has thought it best to publish a note declaring that Dr. Doyen's results are not yet sufficiently attested and that until the efficacy of his treatment has been well established by methodical experiments it would be imprudent to relax the strictness of our sanitary legislation in respect to foot-and-mouth disease.

Abdominal Pneumococcic Septicemia

At the last session of the Société médicale des hôpitaux de Paris, Dr. Triboulet drew attention to the fact that while pneumonia, in the child as in the adult, represented the spontaneous and relatively benign fixation of the pneumococci, the case is quite different when the pneumococcic septicemia is localized in the abdomen. In addition to severe diarrhea, a duodenal catarrh (bilious diarrhea) is noticed which is particularly frequent in serious and prolonged cases with or without complications (otitis, purulent pleurisy, etc.). A diarrhea may also be associated with the peritoneal syndrome from the beginning, the diagnosis being uncertain and the symptoms recalling appendicitis or typhoid fever. Such cases demand continued treatment by colloidal silver. The patients, moreover, should be watched for a long time for the possibility of some development demanding surgical operation. These observations were confirmed by Dr. Caussade. The possibility of pneumococcus septicemia should be kept in mind in forming a diagnosis, since it is much more frequent than is generally believed.

The Rôle of the Nervous System in the Pathogenicity of Arteriosclerosis

Arteriosclerosis during the last two years has been the subject of a great number of experimental researches, but there has been no inquiry into the possible agency of the nervous system in causing these arteriosclerous lesions. On this subject M. Y. Manouélian recently made an interesting report to the Académie des sciences. He first divulsed a nerve fiber arising at the level of the solar plexus and running to the abdominal aorta in dogs and killed the animals at the end of a period varying from twenty days to two months. At the autopsy he found sclerous plaques in the region of the aorta corresponding to the nerve fiber divulsed, the rest of the aorta remaining absolutely unaffected. Another experiment consisting in divulsing a large nerve fiber running into the pulmonary artery after opening the thorax and making an incision in the pericardium. The dog having been killed sixty-five days after this operation, the autopsy showed a sclerous plaque in the region corresponding to the nerve fiber removed. Manouélian concludes that nervous lesions play an important rôle in the production of arteriosclerosis.

A Resolution with Regard to Criminals Acquitted on the Ground of Irresponsibility

At the close of the last session of the assizes of the Seine, the jury which had just acquitted a murderer on the ground of irresponsibility, sent to the minister of justice a note communicating a resolution, signed by twenty-eight of the thirty-one members of the jury, that the law should permit criminals acquitted on the ground of irresponsibility to be shut up in a special sanatorium until they ceased to be a danger to the public.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Aug. 11, 1911.

Personal

Professor Stähelin, first assistant at the Berlin Medical Clinic I, has been appointed director of the medical clinic at Basel, succeeding Professor Gerhardt. Professor Sauerbruch of Zurich has been appointed director of the surgical clinic at Königsberg, which position was refused by Professor Enderlen of Würzburg. Professor Trendelenburg, in Leipsic, who, as I have written already, resigned at the end of this semester, has received the title of privy councilor, with which is connected the title of *Excellenz.*

Professor Dr. Levy of Strassburg, the former assistant of Professor Foster, has received an extraordinary professorship in social hygiene. Professor Passow, the director of the Berlin Ear Clinic, has obtained an extraordinary professorship in rhinology. It is evident that this is meant to be a consolation for Passow's failure to obtain the management of the laryngologic clinic, to which position he aspires.

Unusual Jubilee

August 6, Privy Sanitary Councilor Friedrich Körte celebrated a very unusual jubilee, the seventieth anniversary of his doctorate. Körte, who is the father of the well-known surgeon, has for many years occupied a prominent position in Berlin medical circles. When only a young man he was elected president of the Gesellschaft für wissenschaftliche Medizin, a proof of his high repute among colleagues. Later, he succeeded in uniting this society with the Gessellschaft Berliner Aerzte (founded by Albrecht v. Gräfe) to form the Berliner medizinische Gessellschaft. Körte was president of this sociey, and was later succeeded by his friend Rudolf Virchow. In the professional life of Berlin, Körte was for a long time a leading figure. When in 1887, in Prussia, the Aerztekammer was founded as a professional representation, Körte was the first president of the Berlin Aerztekammer. Now, at the age of 93, he enjoys comparatively good health, physically and mentally.

Conflict Between Physicians and Krankenkassen

In Halle a conflict has broken out between the physicians and the Krankenkasse organization, the former demanding a family insurance and also the free choice of physicians. The central meeting of the Krankenkassen rejected the propositions, as it was claimed to be impossible to pay the total sum of 10 to 12 marks ($2.50 to $3.00) for each insured individual.

The Warfare Against Sleeping-Sickness

As reported, the chief of the colonial health-board, Professor Dr. Steudel, has just left Marseilles for German East Africa where he will pursue the study of sleeping-sickness. The route is from Mombassa via the English Uganda railroad to Lake Victoria, where an inspection of the sleeping-sickness camps along the eastern shore will take place. From here Dr. Steudel will travel to Muansa, by the same lake, this point offering special interest, being an endemic seat of the disease. In Bukoba, also by the lake, will be visited the two oldest of sleeping-sickness camps in German East Africa, which have existed since 1907. Thence the journey will continue to Kissenji, by Lake Kiwu, from the south end of which the road goes through the Russisi Valley to Usambara, at the northern end of Lake Tanganyika, the government seat of Urundi. The Russisi Valley is of especial interest because it is the main road from Tanganyika, from which direction the disease is spreading; for protection much timber has been cleared here. Six sleeping-sickness camps will be visited at the northern end of Tanganyika where the disease claims the most victims in the German territory. From Ujiji, the terminal point of the East African Central Railroad, the journey will lead over Tabora to the angle of the road and then with the Central Railroad, as far as it is completed, back to Daressalam. Thus, the hygienic conditions along the railroad as well as in the capital, Daressalam, will be studied; especially the preventive measures against malaria will be tested. A visit is planned to the high altitude sanatorium Wugiri and perhaps also to the settlement at Kilimanjaro. The trip is planned to last about five months.

Infant Mortality in the Large Cities

According to statistics compiled at Amsterdam, that city has the lowest infant mortality among twenty large European cities, namely 8 per 100 births. Next comes Paris with 9 per cent.; third, London with 10.2 per cent.; and fourth, Milan with 12.4. The highest figures are furnished by Moscow, 32.6 per cent., and St. Petersburg, 25 per cent; then follows Breslau with 20.7; Munich, 19.2; Leipsic, 17.2; Vienna 16.4; Budapest 16.2; Berlin 14.6; Hamburg, 13.8; Dresden 13.3, after which follow Rome, Naples, Manchester, Liverpool, Birmingham and Glasgow. As a whole, the infant mortality in the twenty cities during the last three decades has decreased as follows: In Munich from 36.9 to 19.2; in Breslau from 35.0 to 20.7; in Berlin from 31.3 to 14.6; in Dresden from 24.3 to 13.3; but in Moscow only from 34.6 to 32.6; in St. Peterburg from 29.9 to 25.0; in Vienna from 18.8 to 16.4; in Rome from 18.8 to 13.4; in London from 15.8 to 10.2; in Paris from 18.4 to 9.4, and finally, the very remarkable decrease in Amsterdam, from 24.5 to 8.0 per 100 births.

Miscellany

The Hemoleukocytic Formula in Human Tuberculosis.—The investigation of the changes which the blood undergoes in consumptives has given rise to many studies, and their authors have come to such divergent conclusions that up to the present it has been impossible to establish a well-defined hemoleukocytic formula which might serve as a standard for instituting a more or less exact hematologic diagnosis, as in the case of other diseases. Tuberculosis is a disease which develops between periods of calm and of exacerbations more or less intense, and it is precisely in these intervals that the infection progresses and changes its phases, so that if, in addition to the clinical observation, a repeated examination of the blood is also made, a type of hemoleukocytic desequilibrium may be established which will permit useful deductions to be made respecting the course of the infection, the reactional energy on the part of the organism, the therapeutics and even the provisional prognosis. Following these ideas M. Dominguez (*Sanidad y Beneficencia*, April, 1911) made an attempt to study the question. He has been able to follow thus *far the* course of forty observations, including adults and children in various stages of the disease. The greatest possible amount of data in relation to the phases of the infection has been obtained, and note of the clinical symptoms has been taken
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medium-sized cells predominating. Persistent lymphocytosis in closed coxalgias was notable, the figure varying between 31 and 40 per cent. Large mononuclears varied between .62 and 15.67 per cent., the most constant figures being from 9 to 12 per cent. In a general way, therefore, Dominguez finds that unadvanced consumptives with small hemorrhages, with fever and scant expectoration and tendencies to regression, present a leukocytosis of 9,000 to 12,500, a low mononucleosis of 12 to 15 per cent., and an eosinophilia which at times reaches over 5 per cent. when the manifestations cease and which maintains itself more or less in relation to the period of apparent recovery. In the laryngeal forms there is a lymphocytosis of between 25 and 35 per cent. In tuberculous coxalgias in children, there is a slight or no hypoleukocytosis, 37 to 55 per cent. polynuclears, and 4 to 8 per cent. polynuclear eosinophilia, the characteristic of these forms being the lymphocytosis, at times reaching 46 per cent.

Prophylaxis of Epidemic Poliomyelitis in Norway.—The authorities in Norway published in June an appeal to physicians to be on the lookout for acute poliomyelitis, saying that it has recently appeared at different points throughout the country and the number of cases and the virulence of the disease as observed now surpass all experiences since the epidemics of 1905. After referring to the circul[illegible]
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the necessity for [illegible]isa, 1880; a member of the Teller County
during th[illegible]ociety; died in Victor, Colo., July 17, seven days
after an operation for appendicitis, aged 55.

Deaths

Charles Voorhees Butler, M.D. New York University, New York City, 1893; of New Brunswick, N. J.; a member of the American Medical Association; a member of the staff of St. Peter's Hospital, New Brunswick, and Wills Memorial Hospital, Philadelphia; acting assistant surgeon, U. S. Army, during the Spanish-American War; died in Paris, France, July 15, from septicemia following a carbuncle, aged 42.

Herman P. Bender, M.D. University of Freiberg, Germany, 1879; a member of the Medical Society of the State of New York; a well-known surgeon of Brooklyn; radiographer to the German Hospital and president of its medical board, and also a member of the staff of Kings County Hospital; while alighting from a trolley car in Brooklyn, August 15, was struck by a speeding automobile and instantly killed, aged 54.

Guy Abbott Grafton, M.D. University of Minnesota, Minneapolis, 1899; of Hayward, Wis., formerly of Winona, Minn.; a member of the American Medical Association; died in St. Joseph's Hospital, Ashland, Wis., August 9, from acute peritonitis, following fracture of the leg in an automobile accident, a week before, aged 34.

John Henry Korff, M.D. College of Physicians and Surgeons, New York City, 1869; formerly a specialist on diseases of the eye and ear of New York City, and later an employee of the U. S. Subtreasury, Manhattan; died at the home of his son in East Orange, N. J., August 16, from cerebral hemorrhage, aged 67.

Edward O. Gratton (Years of practice, Illinois, 1878) hospital steward and acting assistant surgeon U. S. Army, assigned to the Seventy-Second Illinois Volunteer Infantry during the Civil War; a member of the first Board of Trade of Chicago; died at his home in Harvard, Ill., August 18, *aged* 84.

Edward Bernard Coburn, M.D. Albany (N. Y.) Medical College, 1890; a member of the Medical Society of the State of New York and the New York Academy of Medicine; surgeon to the New Amsterdam and Cornell dispensaries; died at his home in New York City, August 10, aged 43.

Patrick R. Bailey, M.D. University of Nashville, Tenn., 1868; a Confederate veteran; for thirty-four years an employee of the United States postal service; head of the mailing division of the Nashville Post Office; died at his home in Nashville, August 16, from heart disease, aged 64.

Benjamin Wilson, M.D. College of Physicians and Surgeons, New York, 1863; a member of the American Medical Association; surgeon of U. S. Volunteers during the Civil War; died at his home in Rochester, N. Y., August 13, aged 71.

John T. Kennedy, M.D. Tulane University, New Orleans, 1868; for more than twenty years vice-president of the Fannin *County* (*Tex.*) National *Bank*; died at his home in Bonham, August 17, from heart disease, aged 71.

Quincy Adams Lowe, M.D. Long Island Hospital College, Brooklyn, 1873; a veteran of the Civil War; for twenty-six years a practitioner of Crookston, Minn.; died at his home in Riverdale, Cal., August 5.

Ralph N. Gordon, M.D. University of Michigan, Homeopathic College, Ann Arbor, Mich., 1897; for thirty-five years a practitioner of Arlington, Ill.; died at his home in Seattle, Wash., August 7, aged 69.

Lewis Almon Harmon, M.D. Grand Rapids (Mich.) Medical College, 1905; of Marshall, Mich.; died in a hospital in San Antonio, Tex., August 10, shortly after an operation for acute peritonitis, aged 34.

Exeter P. Vaux, M.D. University of Louisville, Ky., 1876; a member of the Medical Society of the State of California; died at his home in Santa Cruz, April 14, *from* cerebral hemorrhage, aged 59.

William Joseph Mason, M.D. Atlanta (Ga.) Medical College, 1884; of Riderville; a member of the Medical Society of the State of Alabama; died at Selma, in July, from nephritis, aged 50.

Samuel Reed Richey (license, Indiana, 1897); died at his home in Donaldson, *Ind.*, August 1, from ulceration of the pylorus, complicating chronic gastro-intestinal catarrh, aged 70.

James J. Gleeson, M.D. University of Pennsylvania, Philadelphia, 1898; of New Haven, Conn.; died in St. Raphael's Hospital in that city, August 12, from pneumonia, aged 36.

Samuel O. Moore, M.D. University of Louisville, Ky., 1886; of Winnsboro; a member of the State Medical Association of Texas; died at Mineral Wells, Tex., August 16, aged 54.

Michael John Crilley, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1869; of Prescott, Ariz.; a veteran of the Civil War; died in Foster, O., August 13, aged 64.

Patrick J. Byrne, M.D. Bellevue Hospital Medical College, 1888; a *member* of the American Medical Association; died at his home *in Bronx Borough*, New York, August 3.

Alphonso Armstrong, M.D. Medical College of Ohio, Cincinnati, 1871; died recently at his home in Kewanna, Ind., from heart disease, *aged* 67.

Snowden Robertson, M.D. Atlanta (Ga.) Medical College, 1873; died at his home in Dallas, Ga., May 31, from cerebral hemorrhage, *aged* 71.

Morse Stewart, M.D. Detroit (Mich.) Medical College, 1878; of Petite Côte, Que.; died in the Hotel Dieu, Windsor, Ont., August 10, aged 58.

Edward R. Tevis, M.D. Louisville (Ky.) Medical College, 1880; died at his home in Brooksburg, Ind., June 30, from uremia, aged 55.

The Malarial Cycle.—Reviewing Professor Ross' "Prevention of Malaria," E. A. Minchin says in *Science Progress* that "the malarial theorem, as Ross aptly terms it, may be stated briefly as follows: Malaria in man or animals is a disease caused by a minute parasite which lives and multiplies in the blood, passing its trophic phase within the red blood-corpuscles. The parasite is propagated from one vertebrate host to another by the agency of certain mosquitoes, which, on sucking the blood of an infected vertebrate, take various stages of the parasite into their stomachs with the blood; one stage of the parasite resists the action of the digestive juices of the mosquito and passes through a sexual process of generation and multiplication within the body of the mosquito, the cycle ending after some days with the production of many thousands of minute germs ('photospores,' Ross) lodged in the salivary glands. If the mosquito then succeeds in biting a vertebrate of the right kind, that is to say, of the kind which is a specific host of the parasite in question, the germs pass down its proboscis and are inoculated into the blood, thus bringing about a fresh infection of the disease. Every statement made in the foregoing sentences is based on rigorous experiment or accurate microscopic investigation. It only remains to add that the various species of malarial parasites are specific to certain hosts, vertebrate or insect; those

the Jaroma Company, instance, can be transmitted only by mosquitoes
physicians as a specific for sleeples of men only by the sub-
the reading matter indicated that Jaroma principles of malarial
the same class of humbugs as Oleozone and Plantox of cir-
the efforts of the promoters at that time appeared to be devoted more assiduously to the sale of Jaroma Company stock than to the exploitation of the remedy, it was not considered worth while to make an analysis of the preparation. Recently, however, an advertising campaign for the sale of the remedy has been inaugurated both in the lay and to a limited degree in the medical press. A quarter-page advertisement has been appearing in medical journals often supplemented by a "reader" which still further sets forth the supposed merits of the nostrum. In the advertisements in the daily papers the assertion is made that Jaroma is indorsed by the medical profession and in support of this, parts of the "reading notices" from the medical journals are quoted. Once more then we have the edifying spectacle of medical journals lending their pages to the exploitation of a fraudulent "patent medicine" and aiding and abetting in humbugging the public.

One medical journal which carries advertisements for this nostrum describes Jaroma in part as follows:

> "A DISTINCT ADVANCE IN THE TREATMENT OF INSOMNIA
>
> "Recently a new hypnotic has become available to the profession and careful investigation seems to indicate that an ideal sleep-producer has been discovered. This new product, called Jaroma, is of vegetable origin and is obtained from a gum resin, in turn secured from narthex, a species of umbelliferous plant grown in provinces of Persia and Beloochistan. This gum resin from which Jaroma is prepared has long been used in the Orient for special purpose, while in Great Britain it has been successfully employed medicinally as an antispasmodic.
>
> "Through the use of Jaroma in appropriate dosage, natural sleep is obtained from which in four to eight hours a patient awakens refreshed and vigorous. No after-effect is produced and this eligible remedy is totally devoid of any depressing or toxic action. Its full physiological effect can be obtained as long as necessary without having to increase the dose and it has no habit-forming tendencies."

The circulars accompanying the nostrum are evidently intended for the laity, as may be seen from the following:

> "Are you nervous? Take Jaroma Vegetable Tablets.
>
> "Can't you sleep? Take Jaroma Vegetable Tablets."
>
> "Jaroma Vegetable Tablets, the new & wonderful specific for the 'AMERICAN DISEASE' NERVOUSNESS in its various forms."
>
> " . . . Jaroma is the needed special nerve food to counteract the special strain of modern American business and social life."
>
> "For the discovery of the Jaroma formula we are indebted to an eminent German Nerve Specialist who has had most gratifying results from this compound in his private practice."

Jaroma having gone to the medical profession its examination was taken up by the Association's chemists who reported as follows:

Correspondence

Concerning Sanatorium and Dispensary Treatment of Tuberculosis

To the Editor:—Advocates of sanatorium treatment of tuberculosis have attempted to prove its value by giving the immediate results of treatment. The fact that immediate results are of slight importance in comparison with the ultimate results does not yet seem to be realized. The very name, sanatorium, indicates that it is a place where patients go to be cured, yet few men realize that tuberculosis is not cured in six months, but that it requires three, four or five years. The ultimate results, therefore, in patients who have undergone sanatorium treatment, are really the true test of its value. The economic importance of this question is great, for the cost of maintenance in the sanatorium, while probably less than that in the general hospital, is undoubtedly high. It is impossible to establish sanatoriums in sufficient numbers to accommodate all patients suitable for admission, and further, were this possible, the expense of maintenance would be a grievious tax on the public.

Many attempts have been made to solve this difficult problem of the treatment of tuberculosis among the masses, but not until a few years ago, when special dispensaries for the free treatment of the tuberculous were first established, was any real attempt made to treat tuberculosis outside of the sanatorium. In these dispensaries, not only medical but also material assistance and advice in rega
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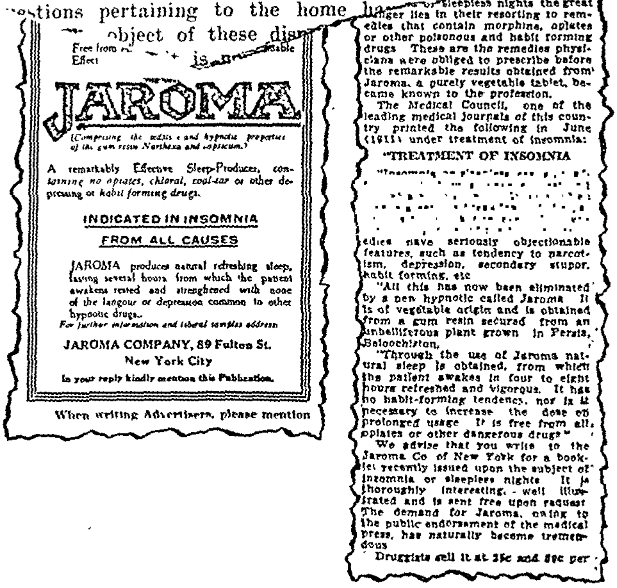

Free from
Effect
able

JAROMA

(Comprising the sedative and hypnotic properties of the gum resin Narthexa and capsicum.)

A remarkably Effective Sleep-Producer, containing *no opiates, chloral, coal-tar or other depressing or habit forming drugs.*

INDICATED IN INSOMNIA
FROM ALL CAUSES

JAROMA produces natural refreshing sleep, lasting several hours from which the patient awakens rested and strengthened with none of the langour or depression common to other hypnotic drugs.

For further information and liberal samples address

JAROMA COMPANY, 89 Fulton St.
New York City

In your reply kindly mention this Publication.

When writing Advertisers, please mention

are troubled with
or sleepless nights the great danger lies in their resorting to remedies that contain *morphine, opiates* or other poisonous and habit forming drugs. These are the remedies physicians were obliged to prescribe before the remarkable *results* obtained from Jaroma, a *purely vegetable* tablet, became known to the *profession.*

The *Medical Council,* one of the leading *medical journals of this country* printed the following in June (1911) under treatment of insomnia:

"TREATMENT OF INSOMNIA

"Insomnia [illegible]

edies have seriously objectionable features, such as tendency to narcotism, depression, secondary stupor, habit forming, etc.

"All this has now been eliminated by a new hypnotic called *Jaroma.* It is of vegetable origin and is obtained from a gum resin secured from an umbelliferous plant grown in Persia, Beloochiston.

"Through the use of Jaroma natural sleep is obtained, from which the patient awakes in four to eight hours refreshed and vigorous. It has no habit-forming tendency, nor is it necessary to increase the dose on prolonged usage. It is free from all opiates or other dangerous drugs."

We advise that you write to the Jaroma Co. of New York for a booklet recently issued upon the subject of insomnia or sleepless nights. It is thoroughly interesting, well illustrated and is sent free upon request. The demand for Jaroma, owing to the public endorsement of the medical press, has naturally become tremendous.

Druggists sell it at 25c and 85c per

Photographic reproduction (reduced about one-half) of typical advertisements of Jaroma. On the left is the advertisement that has appeared in such medical journals as the *International Journal of Surgery, American Medicine, Medical Council, American Journal of Clinical Medicine,* and possibly others; on the right is a typical newspaper advertisement. This particular one appeared in the Buffalo *Evening Times.*

1/10 grain, would have properties similar to Jaroma. As gypsum has been frequently employed as an adulterant of asafetida the analyst has no means of demonstrating whether the calcium sulphate found in the tablets had been added as a "make-weight" or whether it is a part of the "formula" of the "eminent German Nerve Specialist."

he chemists' report this "new vegetable nerve food" is, essentially, asafetida. Although in rational medicine no hypnotic powers are claimed for this drug it is often prescribed in certain forms of hysteria, while as a condiment, it has been known and used from prehistoric times. Therefore, the only new thing about the stuff is its name and the fraudulent use to which asafetida is put. Jaroma is another of those nostrums which are used to humbug both the public and the medical profession.

Miscellany

The Hemoleukocytic Formula in Human Tuberculosis.—The investigation of the changes which the blood undergoes in consumptives has given rise to many studies, and their authors have come to such divergent conclusions that up to the present it has been impossible to establish a well-defined hemoleukocytic formula which might serve as a standard for instituting a more or less exact hematologic diagnosis, as in the case of other diseases. Tuberculosis is a disease which develops between periods of calm and of exacerbations more or less intense, and it is precisely in these intervals that the infection progresses and changes its phases, so that if, in addition to the clinical observation, a repeated examination of the blood is also made, a type of hemoleukocytic desequilibrium may be established which will permit useful deductions to be made respecting the course of the infection, the reactional energy on the part of the organism, the therapeutics and even the provisional prognosis. Following these ideas M. Dominguez (*Sanidad y Beneficencia*, April, 1911) made an attempt to study the question. He has been able to follow thus far the course of forty observations, including adults and children in various stages of the disease. The greatest possible amount of data in relation to the phases of the infection has been obtained, and note of the clinical symptoms has been taken before making the analysis of the blood. In all patients the presence of the Koch bacillus in the sputum was confirmed. The results obtained from the globular count in his cases were as follows: The number of red cells per cubic millimeter oscillated between 2,612,500 (case with hemoptysis, intestinal invasion and bloody diarrhea) and 5,400,000. In only one case of pulmonary and laryngeal tuberculosis, cavitary and with cardiac hypertrophy, did the number reach 7,231,250. The most constant oscillation was between 4.187,000 and 5,921,250. The alterations in the size of the globules were very exceptional; the megalocytes and microcytes occurred only in cases of intense anemia; the achromia and polychromatophilia were slight. The red globules rarely exceeded the normal limits. In tuberculosis the changes in the blood were not constant, but variable from one case to another, and depending on multiple factors differently associated. When there really was anemia, it was moderate. Anemia was rarer and less intense in articular, osseous and vertebral tuberculosis. In exceptional cases, tuberculosis may produce profound anemia and there are two types; anemia at the beginning, frequent not only in the pulmonary but also in the ganglionic form, in which there is a slight hypoglobulia, a marked decrease in hemoglobin and a relative or absolute lymphocytosis. This is the hematologic type of which chlorosis has been made the characteristic and in which many of the so-called chlorotics are only sufferers from anemia due to incipient tuberculosis; the second group includes the anemia of the majority of consumptives who have reached a more or less progressive period of the disease, without hectic fever, and who only present slight alterations of the blood, with an almost normal globular value, and in which the toxemia and cachexia leave no doubt respecting the existence of a globular destruction, which when it does not appear at once, is because it is concealed by an inverse process. Advanced consumptives with hectic fever are generally anemic and the destruction of the blood in these cases is due to septicemia, the disglobulizing process being the same as that of the common septicopyemias. Hyperleukocytosis in consumptives without fever was rarely found, the highest figure being 18,750; in cases of hemoptysis and anemia, hypoleukocytosis more or less pronounced was found. The lowest figure was 3,125; the most frequent variations in different clinical forms oscillated between 6,250 and 12,000. In chronic apyretic tuberculosis or in slightly febrile forms, a polynucleosis of from 66 to 88 per cent., a mononucleosis of from 11 to 15 per cent., and an eosinophilia of from 3 to 10 per cent. were found. In laryngeal tuberculosis, the eosinophilia at times reached 0. In asthmatic consumptives, the figure found was 6.14 per cent. In a child with closed coxalgia and asthma, 8.09 per cent. Lymphocytosis rarely exceeded 46 per cent., the large and medium-sized cells predominating. Persistent lymphocytosis in closed coxalgias was notable, the figure varying between 31 and 40 per cent. Large mononuclears varied between .62 and 15.67 per cent., the most constant figures being from 9 to 12 per cent. In a general way, therefore, Dominguez finds that unadvanced consumptives with small hemorrhages, with fever and scant expectoration and tendencies to regression, present a leukocytosis of 9,000 to 12,500, a low mononucleosis of 12 to 15 per cent., and an eosinophilia which at times reaches over 5 per cent. when the manifestations cease and which maintains itself more or less in relation to the period of apparent recovery. In the laryngeal forms there is a lymphocytosis of between 25 and 35 per cent. In tuberculous coxalgias in children, there is a slight or no hypoleukocytosis, 37 to 55 per cent. polynuclears, and 4 to 8 per cent. polynuclear eosinophilia, the characteristic of these forms being the lymphocytosis, at times reaching 46 per cent.

Prophylaxis of Epidemic Poliomyelitis in Norway.—The authorities in Norway published in June an appeal to physicians to be on the lookout for acute poliomyelitis, saying that it has recently appeared at different points throughout the country and the number of cases and the virulence of the disease as observed now surpass all experiences since the epidemics of 1905. After referring to the circular, issued by the authorities in 1904, the appeal calls attention further to the necessity for isolation of the sick and their attendants during the acute stage (as a rule, for three weeks after the first symptoms). Especial care must be taken to sterilize the secretions from the nose and throat, and the dishes and spoons, etc., used by the sick must be boiled at once. All who have been in recent contact with the sick should be advised to gargle frequently with solutions of potassium permanganate or hydrogen dioxid, and the sick should do this also to render their secretions harmless for others. A terminal disinfection of the room is necessary as for other infectious diseases. Although there is no certain evidence of transmission of the disease by foodstuffs, yet this possibility should not be disregarded, as also the possibility of healthy carriers. The frequency of sore throat as an early symptom of poliomyelitis should be borne in mind, and persons with sore throat who have been exposed to poliomyelitis should be regarded as suspects. Mild abortive cases of poliomyelitis play an important part in the spread of the disease. Physicians are requested to notify the authorities of every new case, with a detailed case-history and remarks on the etiology which the case may suggest, and they are also asked to report the ultimate outcome. The appeal is published in detail in the *Tidsskrift for den Norske Lægeforening*, July 1, 1911, page 92.

Columbia University Quarterly.—This interesting publication often takes up matters of wide general interest. A recent number has several articles of general interest in the educational world, some pictures pertaining to the university and excellent pictures of two physicians who have recently died, Drs. Hermann Knapp and Edward G. Janeway. In a brief sketch of the career of Edward G. Janeway, Dr. Horst Oertel especially points to the eminence of Janeway's lifework as a pioneer in the development of scientific medicine in this country. His position in the field of pathologic anatomy is compared with the work Virchow was doing contemporaneously in Europe; both men breaking with the old scholasticism in the conception of disease. Oertel says that to Janeway a disease was never a type or a collective name given to pigeonholed association of fossilized ideas, but a living localized anatomic process for whose proper understanding one had to reconstruct former experiences. He approached his cases, therefore, with the attitude of the natural scientist. Among his achievements are mentioned that he was the first in this country to champion the infectious nature of tuberculosis; that he gave a description of leukemia for the first time in America, based on his own observations; and that to him we owe the first comprehensive, systematic presentation of syphilitic fever made anywhere. His activity in the establishment of pathologic anatomy as the objective basis of all rational medical thought and practice, may, however, be regarded as his greatest contribution to medicine.

The Malarial Cycle.—Reviewing Professor Ross' "Prevention of Malaria," E. A. Minchin says in *Science Progress* that "the malarial theorem, as Ross aptly terms it, may be stated briefly as follows: Malaria in man or animals is a disease caused by a minute parasite which lives and multiplies in the blood, passing its trophic phase within the red blood-corpuscles. The parasite is propagated from one vertebrate host to another by the agency of certain mosquitoes, which, on sucking the blood of an infected vertebrate, take various stages of the parasite into their stomachs with the blood; one stage of the parasite resists the action of the digestive juices of the mosquito and passes through a sexual process of generation and multiplication within the body of the mosquito, the cycle ending after some days with the production of many thousands of minute germs ('photospores,' Ross) lodged in the salivary glands. If the mosquito then succeeds in biting a vertebrate of the right kind, that is to say, of the kind which is a specific host of the parasite in question, the germs pass down its proboscis and are inoculated into the blood, thus bringing about a fresh infection of the disease. Every statement made in the foregoing sentences is based on rigorous experiment or accurate microscopic investigation. It only remains to add that the various species of malarial parasites are specific to certain hosts, vertebrate or insect; those of birds, for instance, can be transmitted only by mosquitoes of the subfamily Culicinæ; those of men only by the subfamily Anophelinæ." The aims of the principles of malarial prevention must be to interrupt the complex chain of circumstances on which the existence of the parasite depends. If the parasite cannot pass from man into the mosquito, or from the mosquito into man, it becomes extinct with the death of its host, if not before, says Professor Ross, and he offers three general principles of prevention: (1) mosquito reduction; (2) treatment of human beings with quinin; (3) protection of human beings against mosquitoes. Of these three principles—of which neither can be carried out completely—he regards the first-named (mosquito reduction) as giving the best results.

The Investigator's Curiosity.—As children we all have an instinctive curiosity concerning the world about us, a curiosity which most of us gradually lose as we fit ourselves into the social conventions. The investigator is one, however, in whom his natural curiosity still persists. He has never got past the annoying stage of asking "Why?" The events occurring on every side which are matters of course to most men, startle him into wonderment. Why does the spinning top not fall? Why do animals breathe faster when they run? Why does disturbed water take the form of waves? Why do roots grow downward? Why does the mouth become dry when one speaks in public? Such are the questions that arise. The answers to them may be incalculably valuable to mankind. The microscope revealed to Pasteur strange organisms in bad tasting wines. Why may not the disease of the wine, he asked himself, be due to the growth of these unusual germs within it? And later when he found germs also in silkworms, the further question was suggested: Why may not animals likewise become diseased in exactly the same manner? Whether the surmises of the investigator are true, the testimony of other men usually does not tell. He must turn to Nature herself and put the idea to the test of observation and experiment.—Cannon in *Science*.

Woman's Vital Resistance.—Woman excretes less carbonic acid and therefore is in less need of oxygen and needs it less vitally than man. This is thought to be a factor in woman's greater capacity to endure heat, especially the heat of rooms of high temperature, as is seen in bakeries and in the manufacture of charcoal, where it is said that women are little inconvenienced by a very high temperature. This is thought, also, one of the reasons why women experience less discomfort than men in breathing the rarefied air of high altitudes, and why, too, that women suffer less from chloroform anesthetics; and, for want of a better explanation, it has been given as the reason why women criminals more often survive hanging than men.—Stewart in the *Medical Record*.

Correspondence

Concerning Sanatorium and Dispensary Treatment of Tuberculosis

To the Editor:—Advocates of sanatorium treatment of tuberculosis have attempted to prove its value by giving the immediate results of treatment. The fact that immediate results are of slight importance in comparison with the ultimate results does not yet seem to be realized. The very name, sanatorium, indicates that it is a place where patients go to be cured, yet few men realize that tuberculosis is not cured in six months, but that it requires three, four or five years. The ultimate results, therefore, in patients who have undergone sanatorium treatment, are really the true test of its value. The economic importance of this question is great, for the cost of maintenance in the sanatorium, while probably less than that in the general hospital, is undoubtedly high. It is impossible to establish sanatoriums in sufficient numbers to accommodate all patients suitable for admission, and further, were this possible, the expense of maintenance would be a grievous tax on the public.

Many attempts have been made to solve this difficult problem of the treatment of tuberculosis among the masses, but not until a few years ago, when special dispensaries for the free treatment of the tuberculous were first established, was any real attempt made to treat tuberculosis outside of the sanatorium. In these dispensaries, not only medical advice but also material assistance and advice in regard to many questions pertaining to the home have been given freely. While the object of these dispensaries was at first to treat the tuberculous, it is now recognized that their main object is to prevent tuberculosis in the communities in which they are situated. However, for a time, the dispensary, in which many more patients could be treated than could ever be admitted to the sanatoriums, was looked on as vastly more important in the treatment of tuberculosis among the poor than the sanatorium. Many reasons were advanced to uphold this view. When a patient applied to the dispensary for treatment, the other members of his family were subjected to examination. Many early cases of tuberculosis were thus discovered and the problem arose at once as to what steps should be taken. In a large majority of instances, these patients could not afford to give up work, or leave home, and the question at once arose as to the efficacy of the dispensary treatment of tuberculosis.

A large number of individuals among the families of the tuberculous poor who apply for treatment at the dispensary, are found to show physical signs in the lungs. Some of them have symptoms and should be treated. Others have no symptoms and there is grave doubt as to whether these patients need anything more than careful watching. There can be no doubt that some of the good results obtained in dispensary or sanatorium treatment are due to the fact that such individuals have been subjected to treatment. It certainly seems unnecessary to treat patients for a disease of which they present no symptoms. They do, however, need careful watching and here the dispensary may do work of inestimable value. A number of dispensaries in America have published reports of the immediate results of treatment but such figures carry far less weight than the percentages of living, dead and untraced among a number of carefully classified patients. There is no doubt great difficulty in following these patients either to their death or to recovery at the end of five years, but with the excellent facilities at the disposal of many modern dispensaries, such, for example, as the visiting nurses, the various relief associations and the hearty cooperation of the boards of health, such work should present no insurmountable difficulties.

As yet, few, if any, carefully worked out statistics from dispensaries, showing the ultimate value of dispensary treatment, have been published. This method need not necessarily be pursued by every dispensary, but a number of dispensaries in, for instance, Baltimore, Boston, Chicago, New York and Philadelphia, could undertake this work for a series of years. There is no doubt that the class system introduced by Pratt adds the breath of life to many dispensaries. It will be of great value to compare results obtained in the dispensaries before and after the introduction of this method. Many patients from the dispensaries are sent to sanatoriums; on return they should report to the dispensary. These patients should be studied separately and the problem of the best treatment of tuberculosis might then be solved.

There are few figures with which to compare the ultimate results obtained in sanatoriums. In a recent letter to the Lancet (1910, ii, 1446), Davies compares the results in 278 patients who did not go to a sanatorium with fifty who did. Excluding eighty-eight who died within three months, he was able to trace 116 patients, of whom 100 had died at the end of four years, and apportioning the seventy-four untraced patients in a similar manner, 14 per cent. of them were estimated to be alive, while 50 per cent. of the sanatorium-treated patients were living.

Many of the first class might not have been accepted in a sanatorium; still the very great difference (an increase of 250 per cent.) is very suggestive. Careful classification by dispensary physicians could render their figures exactly comparable in the two classes.

When seeking to compare the ultimate results of sanatorium treatment with other figures, Elderton and Perry ("A Third Study of the Statistics of Pulmonary Tuberculosis: The Mortality of the Tuberculosis and Sanatorium Treatment," Dulau & Co., London, 1910), on account of the paucity of more recent statistics were forced to refer to Williams' 1,000 cases reported among the well-to-do in 1872, and to the figures obtained from Pollock's "Elements of Prognosis," published in 1865. The results of this study show that whereas the death-rate in the sanatorium patients is about fourteen or fifteen times the ordinary death-rate, the patients treated by Williams and by Pollock had a death-rate only two or three times the ordinary.

The question is an important one. The sanatorium workers cannot solve it alone and must turn to others for aid. The organization of many dispensaries is at present so perfected that such work as we have outlined, while laborious, should be easy of accomplishment.

Lawrason Brown, Saranac Lake, N. Y.

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To the Editor:—An article on this subject in The Journal (Aug. 12, 1911) gives the causes of this very common and annoying trouble. As personal experience counts for much, I will give the treatment which in my own case has up to 70 years of age preserved a full and even growth of hair over the entire head, with no "skating rink" visible, or even thinness of hairy covering on the vault of the cranium. By inheritance I should have been bald at 45 or 50 years, as all my near relatives have shown that peculiarity; in fact, I know of none of the male members of my family as far removed as cousins who was not more or less deficient in hirsute covering of the head.

At about 40 years of age I began to notice that my hair was becoming somewhat dry and lifeless, and did really begin to drop out in rather alarming amount, so that I set about trying some means to prevent it. A friend advised me to get a wire brush, which I immediately did, and every morning I dampened (not soaked) the entire scalp with cold or lukewarm water. I used a comb only in the parting of the hair, the wire brush did the rest. About once a week I have used a little oil or grease, having tried several kinds; the most satisfactory effect was produced by cocoanut-oil. It keeps the hair soft and silky and does not mat the hair or plaster it down. Usually about once a month, when at the barber for a hair-cut (a trim, not a shingle) I get a good shampoo; I think that is often enough for a thorough scrubbing.

The wire brush keeps the scalp pretty free from dirt and dandruff, in fact I think the brush is the main factor in the treatment. By its gentle and not disagreeable friction of the scalp, it promotes the circulation and thus brings nourishment to the hair-bulbs, and gives vigor to the growing hair.

S. Hendrickson, M.D., Brooklyn.

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To the Editor:—I have read with interest the article by Dr. Hess on "The Need for a Certified or Pasteurized Butter," in The Journal, August 12, 1911.

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To the Editor:—The treatment of spider bites with medicine has proved so extremely unsatisfactory in my experience that I have tried excising a small piece of tissue in three cases during this year and in all cases the results have proved satisfactory. Reasoning that the tissue would slough and that excising is the best treatment in carbuncle or in any condition of sloughing, I thought that excision would prove best in cases of spider bites and so it has. The part can be rendered painless by injecting 1/10 of 1 per cent. solution of cocain or some local anesthetic and if this is done properly the wound gets well rapidly. The low resistance of fat makes it necessary to excise a larger piece than one would at first think necessary. It is best to go to the underlying muscle or else sloughing may occur at the bottom of the wound. The amount of tissue necessary to be excised depends on conditions present, the length of time after the bite, and so forth. As a rule the pain stops and the patient is comfortable after the operation.

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To the Editor:—I saw the statement of Dr. Charles F. Brigham in The Journal, August 26, regarding the "Royal Order of Lions" fraud. The promoter of this concern was in our town May 15, and showed me the receipts of half a dozen physicians of surrounding towns who had signed his contract. After discussing the matter with my father, who was present, and to whom the contract also seemed good, I "bit."

I received a bunch of blanks and other printed matter setting forth the benefits to be derived from a membership in the order, etc., with the stamped address 209½ Brady St. (Phone N. 4402-L), supposedly Decatur, Ill. I sent a letter to Decatur which was forwarded to Madison, Wis., and from there to Green Bay, Wis., and then returned unclaimed.

Louis H. Miller, M.D., Pana, Ill.

Southerners Being Separated from Their Money

To the Editor:—There is a sharper who has been working the physicians here in the south. He pretends to be an old graduate and usually states that he wants a draft endorsed so that he may obtain money to pay the burial expenses for some of his relatives, or to have a relative operated on. He is about 5 feet 10 inches in height and of a swarthy complexion. If you will call attention to this in The Journal and ask anyone that he tries to bunco to have him arrested and wire the chief of detectives in Nashville you will be conferring a great favor.

Lucius E. Burch, Nashville, Tenn.

Chalk Paste Not a Good Substitute for Bismuth Paste

To the Editor:—In THE JOURNAL, July 29, Dr. James R. Mitchell advocates the use of chalk paste as a substitute for Beck's bismuth paste. Though my experience with bismuth paste has been slight, and with chalk paste none at all, still I would caution against the substitution of the latter for the former. Whoever has had experience with bismuth subnitrate and calcium carbonate in various inflammatory conditions, knows that chalk cannot do what bismuth salts can do. In subacute or chronic gonorrhea, in simple diarrhea, in cholera infantum or cholera morbus, in various dermatologic conditions we cannot substitute chalk for bismuth, for bismuth possesses siccative, granulation-promoting and astringent properties which chalk does not possess. That it is not the nitrate radical that is responsible for these desirable properties is evident from the fact that the same properties are possessed by other bismuth combinations, such as the subcarbonate, the oxid, the hydrate (milk of bismuth), the salicylate, etc. The statement, therefore, that the bismuth in the bismuth paste acts merely as a mechanical stimulant seems to me unwarranted, and the caution against the substitution recommended by Dr. Mitchell is, in my opinion, a very necessary one.

WILLIAM J. ROBINSON, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter *must contain the writer's name and address, but these will be omitted, on request.*

OPERATION ON AN ANKYLOSED KNEE

To the Editor:—Can you give me any information regarding the operation on an ankylosed knee by which some function is restored to the joint? JOHN J. MCKENNA, Philadelphia.

ANSWER.—It is assumed that the term "ankylosed knee" in the above question refers to one in which true synostosis has taken place. The principle underlying the successful treatment of synostosed joints consists in the interposition, between the separated ends of the bones forming the joint, of some non-absorbable material which will prevent the bones from reuniting. The knowledge that the accidental interposition of fascia or other soft tissue between the fractured ends of a long bone frequently leads to non-union with the formation of a false joint, is undoubtedly what gave rise to the idea of interposing similar material between the ends of the bones to prevent the reunion of the bones in the ankylosed joint. The materials which have been introduced for this purpose are numerous, and are both *inorganic and organic*. The introduction of inorganic materials, such as Payr's magnesium plates, etc., has not been followed by very encouraging results. The use of organic material, on the other hand, has been followed by much *more favorable results*. Organic material may be used in the shape of dead membrane, such as hog's bladder acted on by chromic acid, or it may be used in the shape of living tissue consisting of transplanted flaps taken from the same individual. The latter *method* is the *one* which has given the best results. The tissue in the latter method may consist of entirely detached flaps of periosteum, or of attached flaps consisting of the fascia lata, together with subcutaneous fat.

If periosteal flaps are used the knee-joint is opened by a suitable incision which freely exposes the entire joint; the synostosed bones are separated with a chisel, the raw bony surfaces made as smooth as possible, that *on the tibia being* made slightly concave and that on the femur slightly convex, so that the one will fit the other approximately in the normal manner. An incision is then made over the inner surface of the tibia, usually at the upper part. A flap of periosteum is raised from the bone so as to include its osteogenetic layer. This detached periosteal flap, which should be large enough to cover the denuded surfaces of the bone, is then transferred to its proper surface, where it is stitched with catgut to hold it in place. A similar periosteal flap is then applied to the denuded surface of the other bone in the same manner. If motion of the joint is limited by cicatricial or contracted ligaments or bands, these are removed. The joint is then closed by properly suturing the soft parts around it. the operation wound over the tibia is likewise closed, and the leg is placed in a plaster cast.

In using attached flaps there may be used a single unilateral flap consisting of the fascia lata and fat covering it, which may be dissected up and turned into the joint, or bilateral flaps may be made. The latter is preferable, as the single long flap is more likely to undergo destructive absorption than two shorter bilateral flaps. The bones, of course, are prepared as already mentioned, and the flaps are sutured in place, the joint closed and the leg placed in a plaster cast. In order to be successful, this operation requires a high degree of technical skill, much experience and good judgment in the selection of proper cases for the operation.

WHAT IS THE "LAST ILLNESS"?

To the Editor:—There is a statute in my state which gives priority in favor of the claims of physicians for services rendered during the last illness of a decedent to an amount not exceeding $50. Please inform me what is meant by the phrase "services rendered during the last illness of the decedent." Would it cover any fixed period of time, for example, if a man suffered from consumption or Bright's disease for one or more years and then died of pneumonia or uremia? D. P. C., Va.

ANSWER.—A "last illness," under such a statute, according to Pennsylvania decisions cited in "Five Words and Phrases Judicially Defined," 4007, means the immediate illness resulting *in the decedent's death. It does not include the illness* caused by a serious injury from which he so far recovers that he is able to attend to business, but has a subsequent relapse. Nor can it be construed to include a lingering illness that has stretched across *many months or many years*. Men sometimes die from diseases of the heart, lungs or other organs, which commence with infancy, terminating only with old age. They are never well, always complaining, but lingering on throughout the usual period allowed to human life. In other instances the disease runs its course in a shorter time, but still the patient lingers, down at times, up and about at others. Such cases, where the illness is so protracted, the statute certainly does not contemplate. Where the disease assumes a fatal form, runs its course rapidly, the patient virtually prostrated, and the services of a physician constantly necessary, the case just as certainly is contemplated. Where a person suffered from softening of the brain, the progress of the disease being gradual and slow, the patient living for more than a year after the physician's *attendance* commenced, going about the house, waiting on herself generally, once visiting abroad for several weeks, the disease manifesting itself only in weakness and irritability up to within a short time of her death, when it resulted in apoplexy, prior to which the physician's attendance was irregular, he going only when called, but subsequent to the apoplexy his visits were regular and pretty constant, the latter period was the "last illness" for the services during which the physician was entitled to preference.

The term "last illness," however, has been held to include medical services rendered to a patient for a year and a half prior to his death, where he was suffering during the period from an incurable, progressive disease which resulted in his death.

TRICHOMONAS INTESTINALIS

To the Editor:—Please tell me whether or not *Trichomonas intestinalis* has any pathologic possibilities. I have a patient whose blood shows a most profound anemia with an increase in the eosinophils; white count normal. Repeated examinations of the stool show large numbers of the *Trichomonas intestinalis*. Is there any recent literature relative to this?

N. R. HARLAN, Freeport, Ill.

ANSWER.—*Trichomonas intestinalis* is commonly found in the intestinal canal, especially in cases of diarrhea. Hence the organisms are often seen in stools in cases of typhoid fever, cholera, chronic enteritis, etc. They are also not infrequently found in normal stools. Because they are so sensitive to acid, they do not ordinarily occur in the stomach but in conditions of diminished acidity, as for example, carcinoma, they may be found there in large numbers. Thus, their presence may be of some significance for diagnosis. Their pathogenic possibilities seem to be limited to sustaining or aggravating already existing catarrhal conditions, though some difference of opinion seems to exist regarding this point. Cases of severe chronic enteritis have been reported for which no cause could be found other than the large number of these parasites *constantly found* in the stools. For example, Askanazy (Aschoff's "Pathologische Anatomie," 1909, *i*, *183*), mentions such a case which resulted fatally and in which autopsy revealed no other cause for the intense chronic *ulcerative* adds the breath of life to many dispensaries. It will be of great value to compare results obtained in the dispensaries before and after the introduction of this method. Many patients from the dispensaries are sent to sanatoriums; on return they should report to the dispensary. These patients should be studied separately and the problem of the best treatment of tuberculosis might then be solved.

There are few figures with which to compare the ultimate results obtained in sanatoriums. In a recent letter to the Lancet (1910, ii, 1446), Davies compares the results in 278 patients who did not go to a sanatorium with fifty who did. Excluding eighty-eight who died within three months, he was able to trace 116 patients, of whom 100 had died at the end of four years, and apportioning the seventy-four untraced patients in a similar manner, 14 per cent. of them were estimated to be alive, while 50 per cent. of the sanatorium-treated patients were living.

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Lucius E. Burch, Nashville, Tenn.

enteritis found. He states further that these parasites seem to be able to cause diarrhea in children. There seems to be no evidence that they may directly cause anemia.

References in the literature to the pathogenesis of *Trichomonas intestinalis* are not numerous. Hare's "Practice of Medicine," 1907 edition, says that it is not important from a clinical point of view. Anders' "Practice," 1909 edition, says that the organism is not important from a pathogenic standpoint. Ricketts and Dick, in the last edition (just issued) of "Infection. Immunity and Serum Therapy," 1911, say: "It seems to be of not much pathogenic significance but finds in the liquid stools and in alkaline reaction conditions which favor its proliferation. It may be transmitted as a contagion." This book gives Epstein as the authority for the latter statement. An article in THE JOURNAL, Oct. 15, 1910, p. 1377, by G. C. Dalley, assigns *Trichomonas intestinalis* as the only discoverable cause of a case of gangrene of the lung.

DOSAGE OF SODIUM BICARBONATE

To the Editor:—Hale found that caffein was useless and sometimes even harmful when given with acetanilid to antagonize its harmful effects, but that sodium bicarbonate lessens the toxicity of acetanilid. However, I have seen no mention of the amount or the dose that was best given for this purpose as determined by experimentation. Can you give me any light on this?

C. E. MCREYNOLDS, M.D., Goodrich, N. D.

ANSWER.—On writing to Dr. Hale, we learn that he is not able to answer definitely the questions concerning the relative doses of acetanilid and sodium bicarbonate, but that he believes, from his experimental work, that fairly large doses of the bicarbonate are indicated. He suggests at least 3 grains to every 2 of acetanilid. In case of poisoning he suggests giving as an antidote sodium bicarbonate in divided doses up to 15 or 30 grains, depending on the effect produced. He states that so far as he knows, his laboratory findings have not been put to test by clinical trial.

THE NOGUCHI AND MUELLER MODIFICATIONS OF THE WASSERMANN TEST

To the Editor:—What is the present status of the Noguchi modification of the Wassermann reaction? Is it considered as reliable as the Mueller modification? Can you give the Mueller technic or tell where it may be secured?

L. O. T.

ANSWER.—In the opinion of European authorities and some American, the Noguchi test is not so reliable as the original Wassermann. Many Wassermann workers regard it as not to be depended on alone. The Mueller modification is much more reliable. Its chief difference from the original Wassermann lies in the use of smaller amounts of the various reagents—a drop method. A consideration of the Mueller method will be found in the *Wiener klinische Wochenschrift*, 1907, No. 17, p. 514; 1908, No. 9, p. 282; 1909, No. 40, p. 1376.

The Public Service

Medical Department, U. S. Army

Changes during the week ended Aug. 26, 1911.

Van Poole, G. M., major, detailed to represent the Medical Department of the Army at meeting Association Military Surgeons of U. S., Milwaukee, Wis., September 26 to 30.

Clayton, George R., M.R.C., granted two months' and ten days' leave of absence.

Wilson, William H., major, granted fifteen days' leave of absence.

Brewer, Isaac W., M. nted one month and fifteen days'
leave of absence.
Richard, Charles, col thirty days' leave of absence.
Snyler, Henry D., lie o represent the Medical
Department of the Arm the American Hospital
Association to be held i 19 to 21.
Smith, Herbert H., M leave of absence.
Patterson, Edwin W., his present leave
of absence ordered to U duty.
Appel, Daniel col ded one month.
Stone, Fran io of Monterey,
Cal., *from* ter San Francisco.
Eastman, s attending
suurgeon, N , *for duty*.
Peed, Ge sence.
Ford, Jo s No.
134, June 9,
Brooke, Ro at
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Cutliffe, William O., M.R.C., is relieved from duty at Fort McIntosh, Texas, and will proceed to Fort Lawton, Wash., for duty as surgeon on transport *Dix*.

Bushnell, George E., colonel, is detailed to represent the Medical Department of the Army at annual meeting of New Mexico Tuberculosis Society at Las Vegas, September 6 to 9.

Lambie, John S., Jr., captain, on expiration of leave, will proceed to Fort McHenry, Md.

Robbins, Chandler P., major, is relieved from duty at Fort McHenry, Md., and will proceed to Fort Sill, Okla., for duty.

Duval, Douglas F., major, when relieved from duty at Fort Sill, will proceed to Fort Benjamin Harrison, Ind., for duty.

Suggs, Frank, M.R.C., having reported at Seattle, Wash., will proceed to Fort Lawton, Wash., for temporary duty.

Birmingham, Henry P., colonel, reports his departure, August 8, for Washington, D. C.

Casper, Joseph, first lieut., August 22, reports return from leave to sick in quarters this date, Fort Du Pont, Del.

Suggs, Frank, M.R.C., August 3, reports departure from Fort Egbert, Alaska, for Seattle, Wash.

Cooper, Wibb E., first lieut., August 5, reports departure for Manila on transport *Sheridan*.

Ferenbaugh, Thomas S., first lieut., August 16, reports departure from Langtry, Texas, for Barksdale, Texas, August 18, reports his arrival at Barksdale, Texas.

Gentry, Ernest A., first lieut., August 16, reports departure from Langtry, Texas, for Barksdale, Texas, August 18, reports arrival at Barksdale.

Usher, F. M. C., major, August 21, reports arrival at Fort Sam Houston, Texas, from Camp Mabry, Austin (Maneuvers Texas National Guard).

Pyles, W. L., captain, August 22, reports arrival at Fort D. A. Russell, Wyo.

Hall, J. F., captain, August 23, reports arrival at Fort Strong, Mass., for duty.

Denton, William, first lieut., August 21, reports arrival at Fort Sam Houston, from Camp Mabry, Austin, Texas (Maneuvers Texas National Guard). August 22, reports departure from Fort Sam Houston for temporary duty at Fort Bliss.

De Laney, Matthew A., major, granted leave of absence for one month to take effect about Aug. 24, 1911.

Medical Corps, U. S. Navy

Changes for the week ended Aug. 19, 1911.

Gatewood, J. D., medical director, commissioned medical director from July 11, 1911.

Gates, M. F., medical inspector, commissioned a medical inspector from July 11, 1911.

Shepard, G. W., P. A. surgeon, commissioned P. A. surgeon from Oct. 25, 1910.

Chambers, W., P. A. surgeon, commissioned P. A. surgeon from March 19, 1911.

Bacon, S., Melhorn, K. C., and McGuire, L. W., P. A. surgeons, commissioned P. A. surgeons *from* April 11, 1911.

Boland, M., P. A. surgeon, commissioned P. A. surgeon from July 12, 1911.

Phelps, J. R., and Clifton, A. L., P. A. surgeons, commissioned P. A. surgeons from July 15, 1911.

Henry, R. B., asst.-surg., detached from U. S. S. *Rainbow* and ordered to the naval hospital, Canacao, P. I.

Pratt, L. L., asst.-surg., detached from the naval hospital, Canacao, P. I., and ordered to the U. S. S. *Rainbow*.

Changes for the week ended Aug. 26, 1911.

Hoyt, R. E., surgeon, commissioned surgeon from June 11, 1911.

Jones, R. F., asst.-surgeon, commissioned assistant surgeon from Aug. 2, 1911.

Thomas, G. C., P. A. surgeon, detached from the navy recruiting station, Philadelphia, and ordered to the *Rhode Island*.

Schier, A. R., acting asst.-surgeon, appointed acting assistant surgeon from Aug. 16, 1911.

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U. S. Public Health and Marine-Hospital Service

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Boyd, Frank, A. A. surgeon, granted twenty-six days' leave of absence from Aug. 6, 1911.

Watson, Harry J., A. A. surgeon, leave of absence for thirty days from Aug. 14, 1911, amended to read thirty days from Aug. 2, 1911.

Wilbert, Martin I., technical assistant, detailed to represent the Service at the meeting of the American Pharmaceutical Association to be held at Boston Aug. 14 to 19, 1911.

Medical Economics

This Department Embodies the Subjects of Post-graduate Work, Contract Practice, Legislation, Medical Defense, and Other Medicolegal and Economic Questions of Interest to Physicians

THE COMMON DRINKING CUP

One of the most significant features of the present campaign for better health conditions is the general and apparently spontaneous movement all over the country, against the use of common drinking cups, in railroad stations, trains, parks and public buildings. For years, the common cup has been the inevitable companion of the ice-water tank or fountain. Chained beside the water faucet, it might almost be said to be a national institution. But a sudden wave of public protest is rapidly sweeping it out of existence. The strange thing about this movement is that so little organized effort has been behind it, and that it is impossible to say exactly when or where the agitation for the abolition of the common drinking cup began. For these reasons, it is all the more gratifying, as an indication of growing public sentiment in favor of cleanliness and disease prevention. The substitution of individual glasses or of cheap temporary drinking utensils is so plainly in the interest of cleanliness and decency that but few of even the most confirmed conservatives have objected to this reform, nor has the most stubborn reactionary claimed that such legislation was inspired by selfish interests or due to the efforts of any "rings." The only explanation for the widespread general movement for the abolition of the common drinking cup is that the public became convinced that the common drinking cup was a filthy and disease-conveying utensil which belongs to an unsanitary past and that it should be dispensed with as soon as possible.

This campaign contains a lesson for those interested in progress in sanitary legislation and regulation. Education must precede legislation and regulation. Place the facts before the public in plain, every-day language, without exaggeration and with unmistakable proof, and the people will take care of the rest. Physicians and bacteriologists have for years known that disease could be transmitted by drinking vessels and that common drinking cups were a source of danger. These facts have become known to the general public and as soon as public opinion was educated to a sufficient point, legislation followed. These laws were not passed because physicians asked for them. The people did it.

A few extracts from recent papers are of interest in this connection. The Buffalo *Enquirer* grows philosophic and comments editorially:

"'What is one man's poison, signor, is anotner's meat or drink.' Likewise what is one period's improvement is another period's scorn.

"When an Erie train from Buffalo reaches the New Jersey line, the brakemen gather up the common drinking cups and put them out of reach and sight. When an Erie train starts from Jersey City, the cups are not in view. When the train crosses the New York line, the brakemen bring them from hiding and place them for use.

"It is law both ways. New Jersey, thoroughly down to date, has abolished the common drinking cup on railway trains. New York, a little slow, still requires by law, as a lawyer points out, that railroads shall supply water and drinking utensils to passengers. The common drinking cup is required by old law in New York, although it is forbidden by new law in New Jersey. So the Erie brakemen do the juggling act at the boundary line.

"No doubt it was considered a great blessing when the New York legislature decided to compel railways to supply a tank of water and a drinking cup on every passenger car. It was something over which to rejoice. Now, the drinking cup is a horror, a menace to health and life and its abolition is a measure of public safety.

"No doubt science and refinement will slaughter other customs. We do not know how vile and reckless we are until new revelations come along."

The Norfolk (Va.) *Pilot* says:

"It is a strange anomaly worthy the study of sociologists that sanitary reforms have to be forced on an unwilling, albeit an intelligent, people. . . . The common drinking cup must go, It is the dictum of all sanitary experts, physicians and students of public health. . . . As such abolition is not yet general throughout the states, as it doubtless soon will be, it has caused some inconvenience to passengers in interstate traveling. . . . Doubtless the railroads will shortly provide individual cups for passengers for the cost is infinitesimal and the inhibition of the 'cup of death' will soon obtain over a large section of the country if, indeed, it does not become the rule in every state. Convenient devices for obtaining individual cups at trifling cost are coming into use and it is a foregone conclusion that Virginia will not be far behind her sister states in adopting a system that makes for public health, refinement and civilization. The 'cup of death' must go."

Evidently the question has some theological aspects, as shown by the observation of the Peoria (Ill.) *Star*, which comments on the views of an Episcopalian bishop of Wisconsin:

"Bishop C. C. Grafton, of the Fondulac diocese, favors the action of the State Board of Health of Wisconsin exempting churches from the operation of the rule against the use of the common drinking cup. 'God prevents the transmission of disease through the use of the common communion cup,' says the good bishop. 'The good Lord would not permit the transmission of disease to any of His worshippers through the means of their worship of Him. There has never been an authentic case of the contraction of disease through the communion cup, though the common drinking cup elsewhere should be strictly forbidden.' In spite of the good bishop's belief, the use of a common drinking cup is filthy and should be abolished, whether at communions or elsewhere. God doesn't interpose to save people from their own foolish acts. Punishment follows the infraction of a natural law, whether the person be saint or sinner, and tuberculosis can be imparted from a common drinking cup to a deacon as soon as to a tramp."

The Bay City (Mich.) *Times* realizes that the reform is in the interest of cleanliness, good health and comfort:

"There is no dodging the issue. The private cup is the cup of peace. It is a movement in the direction of health. It is the outgrowth of a condition which medical science has demanded as a safeguard.

"And yet some people are heard objecting to the removal of the drinking cup from railroad trains and other places. If the public cup is a convenience, why not have a public handkerchief, a public towel, a public tooth brush and a public manicure set? One is as reasonable as the other, when you get down to brass tacks.

"Some city boards of health and some common councils that have not yet advanced very far in medical jurisprudence are holding back. The public drinking cup is an old friend and they are loath to part from it. It has served Tom, Dick and Harry, has accumulated germs and microbes, and a rare selection of tobacco juice, onion odors, contaminated saliva and what-not, and it ought to be respected. . . . These boards of health which have made a study of the dangers connected with the promiscuous use of a cup, are really getting so far advanced in their way of thinking that it may become advisable to hold a school of instruction or a conference, so that the kickers against abolishing the public cup, may be heard on this very important question. At such a school, the kickers might also have an opportunity for advocating the public tooth brush and the public towel, and especially the public handkerchief, all of which are closely related to, and allied with, the public drinking cup."

enteritis found. He states further that these parasites seem to be able to cause diarrhea in children. There seems to be no evidence that they may directly cause anemia.

References in the literature to the pathogenesis of *Trichomonas intestinalis* are not numerous. Hare's "Practice of Medicine," 1907 edition, says that it is not important from a clinical point of view. Anders' "Practice," 1909 edition, says that the organism is not important from a pathogenic standpoint. Ricketts and Dick, in the last edition (just issued) of "Infection, Immunity and Serum Therapy," 1911, say: "It seems to be of not much pathogenic significance but finds in the liquid stools and in alkaline reaction conditions which favor its proliferation. It may be transmitted as a contagion." This book gives Epstein as the authority for the latter statement. An article in The Journal, Oct. 15, 1910, p. 1377, by G. C. Dalley, assigns *Trichomonas intestinalis* as the only discoverable cause of a case of gangrene of the lung.

DOSAGE OF SODIUM BICARBONATE

To the Editor:—Hale found that caffein was useless and sometimes even harmful when given with acetanilid to antagonize its harmful effects, but that sodium bicarbonate lessens the toxicity of acetanilid. However, I have seen no mention of the amount or the dose that was best given for this purpose as determined by experimentation. Can you give me any light on this?

C. E. McReynolds, M.D., Goodrich, N. D.

Answer.—On writing to Dr. Hale, we learn that he is not able to answer definitely the questions concerning the relative doses of acetanilid and sodium bicarbonate, but that he believes, from his experimental work, that fairly large doses of the bicarbonate are indicated. He suggests at least 3 grains to every 2 of acetanilid. In case of poisoning he suggests giving as an antidote sodium bicarbonate in divided doses up to 15 or 30 grains, depending on the effect produced. He states that so far as he knows, his laboratory findings have not been put to test by clinical trial.

THE NOGUCHI AND MUELLER MODIFICATIONS OF THE WASSERMANN TEST

To the Editor:—What is the present status of the Noguchi modification of the Wassermann reaction? Is it considered as reliable as the Mueller modification? Can you give the Muèller technic or tell where it may be secured?

L. O. T.

Answer.—In the opinion of European authorities and some American, the Noguchi test is not so reliable as the original Wassermann. Many Wassermann workers regard it as not to be depended on alone. The Mueller modification is much more reliable. Its chief difference from the original Wassermann lies in the use of smaller amounts of the various reagents—a drop method. A consideration of the Mueller method will be found in the *Wiener klinische Wochenschrift*, 1907, No. 17, p. 514; 1908, No. 9, p. 282; 1909, No. 40, p. 1376.

The Public Service

Medical Department, U. S. Army

Changes during the week ended Aug. 26, 1911.

Van Poole, G. M., major, detailed to represent the Medical Department of the Army at meeting Association Military Surgeons of U. S., Milwaukee, Wis., September 26 to 30.

Clayton, George R., M.R.C., granted two months' and ten days' leave of absence.

Wilson, William H., major, granted fifteen days' leave of absence.

Brewer, Isaac W., M.R.C., granted one month and fifteen days' leave of absence.

Richard, Charles, colonel, granted thirty days' leave of absence.

Snyler, Henry D., lieut.-col., is detailed to represent the Medical Department of the Army at the meeting of the American Hospital Association to be held in New York City September 19 to 21.

Smith, Herbert H., M.R.C., granted ten days' leave of absence.

Patterson, Edwin W., M.R.C., on expiration of his present leave of absence ordered to Fort D. A. Russell, Wyo., for duty.

Appel, Daniel M., colonel, leave of absence extended one month.

Stone, Frank P., dental surgeon, returned to Presidio of Monterey, Cal., from temporary duty at Army General Hospital, San Francisco.

Eastman, William R., captain, relieved from duty as attending suurgeon, New York City, and ordered to Fort Riley, Kan., for duty.

Reed, George P., captain, granted thirty days' leave of absence.

Ford, Joseph H., major, so much of Par. 27, Special Orders No. 134, June 9, 1911, as relates to Major Ford, is revoked.

Brooke, Roger, major, on arrival at San Francisco, will report at General Hospital, Presidio of San Francisco, for duty.

Ashburn, Percy M., major, is ordered to Philippine Islands on transport Dec. 5, 1911, for duty on board, studying tropical diseases in the Philippine Islands.

Persons, Elbert E., major, relieved from duty as attending surgeon, Headquarters, Department of the East, and assigned to duty as attending surgeon, Eastern Division

Cutliffe, William O., M.R.C., is relieved from duty at Fort McIntosh, Texas, and will proceed to Fort Lawton, Wash., for duty as surgeon on transport *Dix*.

Bushnell, George E., colonel, is detailed to represent the Medical Department of the Army at annual meeting of New Mexico Tuberculosis Society at Las Vegas, September 6 to 9.

Lambie, John S., Jr., captain, on expiration of leave, will proceed to Fort McHenry, Md.

Robbins, Chandler P., major, is relieved from duty at Fort McHenry, Md., and will proceed to Fort Sill, Okla., for duty.

Duval, Douglas F., major, when relieved from duty at Fort Sill, will proceed to Fort Benjamin Harrison, Ind., for duty.

Suggs, Frank, M.R.C., having reported at Seattle, Wash., will proceed to Fort Lawton, Wash., for temporary duty.

Birmingham, Henry P., colonel, reports his departure, August 8, for Washington, D. C.

Casper, Joseph, first lieut., August 22, reports return from leave to sick in quarters this date, Fort Du Pont, Del.

Suggs, Frank, M.R.C., August 3, reports departure from Fort Egbert, Alaska, for Seattle, Wash.

Cooper, Wibb E., first lieut., August 5, reports departure for Manila on transport *Sheridan*.

Ferenbaugh, Thomas S., first lieut., August 16, reports departure from Langtry, Texas, for Barksdale, Texas, August 18, reports his arrival at Barksdale, Texas.

Gentry, Ernest A., first lieut., August 16, reports departure from Langtry, Texas, for Barksdale, Texas, August 18, reports arrival at Barksdale.

Usher, F. M. C., major, August 21, reports arrival at Fort Sam Houston, Texas, from Camp Mabry, Austin (Maneuvers Texas National Guard).

Pyles, W. L., captain, August 22, reports arrival at Fort D. A. Russell, Wyo.

Hall, J. F., captain, August 23, reports arrival at Fort Strong, Mass., for duty.

Denton, William, first lieut., August 21, reports arrival at Fort Sam Houston, from Camp Mabry, Austin, Texas (Maneuvers Texas National Guard). August 22, reports departure from Fort Sam Houston for temporary duty at Fort Bliss.

De Laney, Matthew A., major, granted leave of absence for one month to take effect about Aug. 24, 1911.

Medical Corps, U. S. Navy

Changes for the week ended Aug. 19, 1911.

Gatewood, J. D., medical director, commissioned medical director from July 11, 1911.

Gates, M. F., medical inspector, commissioned a medical inspector from July 11, 1911.

Shepard, G. W., P. A. surgeon, commissioned P. A. surgeon from Oct. 25, 1910.

Chambers, W., P. A. surgeon, commissioned P. A. surgeon from March 19, 1911.

Bacon, S., Melhorn, K. C., and McGuire, L. W., P. A. surgeons, commissioned P. A. surgeons from April 11, 1911.

Boland, M., P. A. surgeon, commissioned P. A. surgeon from July 12, 1911.

Phelps, J. R., and Clifton, A. L., P. A. surgeons, commissioned P. A. surgeons from July 15, 1911.

Henry, R. B., asst.-surg., detached from U. S. S. *Rainbow* and ordered to the naval hospital, Canacao, P. I.

Pratt, L. L., asst.-surg., detached from the naval hospital, Canacao, P. I., and ordered to the U. S. S. *Rainbow*.

Changes for the week ended Aug. 26, 1911.

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Schier, A. R., acting asst.-surgeon, appointed acting assistant surgeon from Aug. 16, 1911.

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Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

THE COMMON DRINKING CUP

One of the most significant features of the present campaign for better health conditions is the general and apparently spontaneous movement all over the country, against the use of common drinking cups, in railroad stations, trains, parks and public buildings. For years, the common cup has been the inevitable companion of the ice-water tank or fountain. Chained beside the water faucet, it might almost be said to be a national institution. But a sudden wave of public protest is rapidly sweeping it out of existence. The strange thing about this movement is that so little organized effort has been behind it, and that it is impossible to say exactly when or where the agitation for the abolition of the common drinking cup began. For these reasons, it is all the more gratifying, as an indication of growing public sentiment in favor of cleanliness and disease prevention. The substitution of individual glasses or of cheap temporary drinking utensils is so plainly in the interest of cleanliness and decency that but few of even the most confirmed conservatives have objected to this reform, nor has the most stubborn reactionary claimed that such legislation was inspired by selfish interests or due to the efforts of any "rings." The only explanation for the widespread general movement for the abolition of the common drinking cup is that the public became convinced that the common drinking cup was a filthy and disease-conveying utensil which belongs to an unsanitary past and that it should be dispensed with as soon as possible.

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A few extracts from recent papers are of interest in this connection. The Buffalo *Enquirer* grows philosophic and comments editorially:

> "'What is one man's poison, signor, is anotner's meat or drink.' Likewise what is one period's improvement is another period's scorn.
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> "When an Erie train from Buffalo reaches the New Jersey line, the brakemen gather up the common drinking cups and put them out of reach and sight. When an Erie train starts from Jersey City, the cups are not in view. When the train crosses the New York line, the brakemen bring them from hiding and place them for use.
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> "It is law both ways. New Jersey, thoroughly down to date, has abolished the common drinking cup on railway trains. New York, a little slow, still requires by law, as a lawyer points out, that railroads shall supply water and drinking utensils to passengers. The common drinking cup is required by old law in New York, although it is forbidden by new law in New Jersey. So the Erie brakemen do the juggling act at the boundary line.
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> "No doubt it was considered a great blessing when the New York legislature decided to compel railways to supply a tank of water and a drinking cup on every passenger car. It was something over which to rejoice. Now, the drinking cup is a horror, a menace to health and life and its abolition is a measure of public safety.
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> "Some city boards of health and some common councils that have not yet advanced very far in medical jurisprudence are holding back. The public drinking cup is an old friend and they are loath to part from it. It has served Tom, Dick and Harry, has accumulated germs and microbes, and a rare selection of tobacco juice, onion odors, contaminated saliva and what-not, and it ought to be respected. . . . These boards of health which have made a study of the dangers connected with the promiscuous use of a cup, are really getting so far advanced in their way of thinking that it may become advisable to hold a school of instruction or a conference, so that the kickers against abolishing the public cup, may be heard on this very important question. At such a school, the kickers might also have an opportunity for advocating the public tooth brush and the public towel, and especially the public handkerchief, all of which are closely related to, and allied with, the public drinking cup."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Iowa: Capitol Building, Des Moines, September 19-21. Sec., Dr. Guilford H. Sumner.

Massachusetts: State House, Boston, September 12-14. Sec., Dr. Edwin B. Harvey.

Missouri: Kansas City, September 25-27. Sec., Dr. Frank B. Hiller, Jefferson City.

New York: September 26-29. Mr. Harlan H. Horner, Chief of Examinations Division, Department of Education, Albany.

Constitution of the Association of American Medical Colleges

In the Educational Number of The Journal (Aug. 19, 1911) the Constitution of the Association of American Medical Colleges was published showing the various amendments which have been made from time to time since April 10, 1905. We discover, however, that Section 6, of Article 3, as printed shows that among other subjects, credit was allowed for "24 hours in osteopathy." Lest some captious reader may charge the Association with undue liberality in its allowance of credits, we hasten to say that the statement is due to a typographical error and that the clause should have read "24 hours in osteology." Further down the page is printed the section as it is now in force. This reads as follows: "Section 6.—No time credit shall be given to holders of a Bachelor's degree, but subject credit may be given on satisfactory examination. Four years of residence in a medical college shall be required of all candidates for the degree of Doctor of Medicine."

Book Notices

American Mineral Waters: The New England States. By W. W. Skinner, Chief, Water Laboratory. With a Chapter on Bacteriological Methods by G. W. Stiles, Jr., Bacteriological Chemist. Prepared Under the Direction of J. K. Haywood, Chief, Miscellaneous Division. Bull. 139, Bureau of Chemistry. U. S. Department of Agriculture. Paper. Pp. 111. Washington: Government Printing Office, 1911.

It is a valuable piece of work to take up American mineral waters in detail and give the chemical composition and the results of sanitary analysis and an inspection of the premises. The present bulletin covers only the springs of the New England States. The waters are classified according to their chemical character. Fortunately for the mineral water user, the organic purity of the waters of most of these springs is evident from the report of the analyses. In a few cases the water is reported to be of doubtful purity or the surroundings are said to suggest the possibility of contamination. In a few cases the presence of gas-forming bacilli in 1 c.c. of the water is noted, but the spring is not condemned on this account. The comments thus made should be a warning to the owners of such springs to remove objectionable features if they wish to sell their water. The report will be a valuable aid to the physician in selecting a mineral water, as he no longer needs to depend on the advertised analyses which were in most cases reliable, but in some cases failed to agree with the findings of the government chemists.

A List of Books on the History of Science, the John Crerar Library. January, 1911. Prepared by Aksel G. S. Josephson, Cataloguer. Paper. Pp. 297. Chicago, 1911.

The purpose of this list is to render easy the finding of the important classes of books with which it deals and the titles of which are now scattered through the public card catalogue. The list includes the social, physical, natural and medical sciences. It is gratifying to know that the John Crerar Library is especially rich in works on the history of the sciences of medicine. The material is well arranged. There is a complete index and the table of contents shows, at a glance, the groupings of the titles. The list is a distinct contribution to the bibliography of the history of science and will be of great value to students of that history and especially to the students of medical history, the interest in which is steadily increasing.

Infection, Immunity and Serum Therapy in Relation to the Infectious Diseases of Man. By H. T. Ricketts, M.D., Late Assistant Professor of Pathology, University of Chicago. Second Edition. Revised and Enlarged by the Author and by George F. Dick, M.D., Instructor in Pathology, University of Chicago, with Preface by Ludvig Hektoen, M.D. Cloth. Price, $2. Pp. 785. Chicago: American Medical Association, 1911.

The first edition of this work appeared in 1906; as a result of more recent progress along immunologic lines, a thorough revision became desirable, and in this Dr. Ricketts was engaged at the time of his death from typhus fever, contracted in the course of his work on that disease. The revision thus left unfinished has been completed by Dr. Dick, of the department of pathology of the University of Chicago.

The new edition presents several distinct advances over the old. An entirely new part is devoted to the principles of infection; in this are discussed in some detail not only the more general aspects of the subject, but the various mechanisms taking part in the conveyance of disease. A second part is devoted to the discussion of the principles of immunity, and a third to the special features presented by individual diseases. Each of these parts shows considerable elaboration over the corresponding part of the earlier edition—an elaboration necessitated by the new phases of the subjects that have been recently developed. Thus in the second part new chapters have been devoted to the subjects of complement deviation, opsonins and anaphylaxis, and in the third the discovery of spirilla as an important cause of disease has resulted in the introduction of a new etiological group.

The work as a whole presents a thorough summary of our present knowledge of the problems of infection and immunity. The condensation necessary to cover so large and intricate a subject in the limits of a volume of moderate dimensions has not resulted in an unduly dogmatic form of presentation, and as a rule disputed problems are presented with clarity and discretion. As a comprehensive survey of a subject whose literature is so scattered as to be ordinarily inaccessible, the work occupies a distinct and very valuable place. Not only is this true for the practicing physician who may wish to keep abreast of recent developments along these lines, but as well for the special worker who desires to obtain a more general view of his subject.

Die palpablen Gebilde des normalen menschlichen Körpers und deren methodische Palpation. Nach eigenen Untersuchungen an der Leiche und am Lebenden von Dr. Toby Cohn, Nervenarzt in Berlin. III Teil: Hals und Kopf. Paper. Price, 8 marks. Pp. 585, with 92 illustrations. Berlin: S. Karger, 1911.

The present pamphlet of 200 pages is the third of a series, the first two covering 380 pages, and dealing respectively with the upper and lower extremities. The work is the result of an exhaustive study both of the cadaver and of the living subject and when completed will cover, as no other work does, the surface anatomy and its normal variations, of the whole body as it presents itself to the examining eye and finger. By his clear style and broad grasp and presentation, of what might seem a very dry subject, the author has made a very interesting as well as a valuable contribution to medical science. The internist, the neurologist, the pediatrist, the dermatologist and any other specialist will find the work of nearly the same interest and practical value as will the surgeon. The work is in a class by itself and merits the warmest commendation.

Mysteries of Life Series. By Isabelle T. Smart, M.D., Medical Examiner of Defective Children, Department of Education, City of New York. Book 1: What a Mother Should Tell Her Little Girl. Pp. 105. Book 2: What a Mother Should Tell Her Daughter. Pp. 105. Book 3: What a Father Should Tell His Little Boy. Pp. 116. Book 4: What a Father Should Tell His Son. Pp. 103. Cloth. $2.50 per set; 75 cents per volume. New York: The Bodmer Publishing Co., 1911.

This series of four little books is another evidence of the awakening interest of the public in instruction along all lines which lead to better health conditions. The number of books recently published on sex hygiene is an evidence both of the need and of the demand for adequate instruction on this subject. The duty of the conscientious parent to afford some kind of knowledge to the growing child is evident. The question as to the form such instruction shall take should be determined in each case by the parent. The number of books available for this purpose is rapidly increasing and this set should be considered in selecting suitable material.

Medicolegal

Liability for Malpractice in Delivery with Instruments—Skill Required

(Kline vs. Nicholson (Ia.), 130 N. W. R. 722.)

The Supreme Court of Iowa in this case affirms a judgment for the defendant for $459 damages on a counterclaim for malpractice to the plaintiff's action for compensation. The court says that the allegations in the counterclaim of negligence submitted to the jury were that the plaintiff, in effecting the delivery of the defendant's wife during child labor, negligently used instruments; that in the negligent and unskilful use of the instruments he lacerated and wounded the defendant's wife; that he afterward treated such laceration in a negligent and unskilful manner; that in treating the wound he was so negligent and unskilful that he failed to properly dress the same, and that by such negligent and unskilful treatment the wound was prevented from healing.

There was evidence tending to show that the plaintiff used forceps in effecting delivery without waiting a sufficient time to see whether by his assistance delivery could not have been effected without the use of such an instrument, and that, as the use of instruments was more likely to result in rupture involving the danger of subsequent operations, the plaintiff proceeded in a negligent manner. The court is justified in construing the allegation as to negligent use of instruments when in the exercise of reasonable care and judgment they should not have been used as well as the use of instruments as and when they were used. If the defendant's testimony was to be believed, the plaintiff used defective instruments; that is, forceps tied together after they were adjusted on the head of the infant with a string, rag, or piece of silk, with the result that the fastening broke and allowed the forceps to pull loose, causing a rupture of the parts, when, if the forceps had been of a proper kind or properly fastened, such result would not have followed. The evidence tended to show that the plaintiff used an amount of force and violence in attempting to extricate the infant from its mother's womb which was unnecessary and improper, resulting in unnecessary injuries to the patient, including rupture of the perineum and sphincter muscle. The evidence also tended to show an improper method of treatment after the rupture occurred with the result that injury has not been entirely repaired. The court reaches the conclusion that, under the evidence, there was no error in submitting the question of the plaintiff's negligence to the jury, nor in submitting to them each of the allegations of negligence as they were submitted.

The contention for the plaintiff running through the various divisions of his argument relating to the sufficiency of the evidence seemed to be that if he, having the knowledge and skill required in the practice of his profession, erred only in his judgment as to whether instruments should not at the time have been used in effecting delivery and in the method of using instruments to effect delivery, he was not liable for the reason that his duty was only to exercise reasonable care and judgment. But it was still for the jury to say under proper instructions whether, conceding the plaintiff to possess the requisite knowledge and skill, he did in the particular case use the care and judgment which as such a physician he ought to have used. If he was careless or did not use the judgment which a competent physician would ordinarily use under the circumstances of the case, then he was liable in damages. These questions were to be determined, of course, in the light of expert evidence as to what a reasonable, judicious and careful physician would do under like circumstances; but it was for the jury to say whether, in the light of the expert evidence, the plaintiff did exercise the care, skill and judgment required.

In three different instructions the jury were told in effect that, if the plaintiff possessed and employed in the treatment of the defendant's wife such reasonable skill and diligence as were ordinarily exercised in his profession at and in localities similar to that in which he practiced, then he was not responsible for the result of the operation. That statement of law was in accordance with the decisions of this court. But in one instruction the law was thus stated: "Negligence in this case as applied to plaintiff consists in the doing by plaintiff, in the treatment of the defendant's wife, of some act that a physician and surgeon possessing and exercising the average skill and care of the medical profession in the vicinity of the defendant's residence would not ordinarily do under like circumstances." This the plaintiff complained of on the ground that by it he was required to possess and exercise the care and skill usually possessed and exercised in the vicinity of the defendant's residence, rather than that usually possessed and exercised in similar localities. It might be that under some circumstances the rule as thus stated would be erroneous and prejudicial. But, unless the jury might have been led to exact of the plaintiff a higher standard of skill and care than required in similar localities, then he could not possibly have been prejudiced by the instruction, and that did not appear in this case. As supporting the view that such an instruction as above quoted, though erroneous, may be non-prejudicial in a case where the physician is appealing from a judgment against him, see Dunbauld vs. Thompson, 109 Iowa, 199.

Contract of Physician for Part of Amount Recovered by Injured Person Not Valid

(Sherman vs. Burton (Mich.), 130 N. W. R. 667.)

The Supreme Court of Michigan holds invalid a contract made by the defendant with the plaintiff, a physician, whereby the former agreed to pay to the latter, for professional services, one-third of any sum which the former might receive from an electric railway company as damages, arising out of an injury, and further agreed to pay to the physician the sum of $90, in addition to said one-third, if the amount received was $2,000 or more, that is, if the settlement was made outside of courts. The court says it thinks that it necessarily followed from the circumstances of the case as disclosed and the agreement that the parties contemplated that the physician should be a witness in case of suit, and should give a history of, and opinion on, the case in the event of a proposed settlement. His interest in the amount of the damages furnished a powerful motive for exaggeration, suppression, and misrepresentation, a temptation to swell the damages so likely to color his testimony as to be inimical to the pure administration of justice, so that the agreement must be held void.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Bulletin of Johns Hopkins Hospital, Baltimore

August

1 *Studies on Peritoneal Adhesions with Contribution to Treatment of Denuded Bowel Surfaces. E. H. Richardson, Baltimore.
2 Primary Carcinoma of Pleura. T. P. Sprunt, Baltimore.
3 *Case of Puerperal Infection with Isolation from Uterus of B. Influenzæ and New Method for Making Blood Agar for Its Cultivation. W. Thalhimer, Charlottesville, Va.
4 *Hyperleukocytosis of High Grade in Bronchopneumonia in Child. C. R. Austrian, Baltimore.
5 Viability of Parasitic Ova in Two Per Cent. Formalin, with Especial Reference to Ascaris Lumbricoides. R. S. Morris, Baltimore.
6 Haven of Health. W. H. Bergtold, Denver.

1. **Peritoneal Adhesions.**—During the course of an operation for the relief of an enormous post-operative ventral hernia a situation arose which suggested to Richardson a new method of dealing with denuded bowel surfaces under certain conditions. After effecting the release of the intestine there remained two extensive raw areas, each measuring 2 to 3 inches in length, involving nearly one-half the circumference of the bowel, and separated from each other by 6 or 8 inches of practically normal intestine. The problem was practically solved by the accidental laceration and partial retraction of one leaflet of the mesenteric peritoneum just along its line of attachment to the bowel and adjacent to one of the raw areas on the surface of the latter, which occurred during its

separation from the hernial sac. There being a considerable deposit of fat between the two layers of mesenteric peritoneum, it was a simple and easy procedure to extend the separation of the torn leaflet and its attached fat in all directions from the underlying vessels and the opposite intact leaflet with its fat, thus obtaining a large, movable flap of normal peritoneum which was easily drawn up, without tension, spread out over the raw surface on the bowel, and tacked down with a few fine silk sutures. The result was satisfactory in every way. The patient's recovery was complete.

This experience led Richardson to investigate the idea further in order to determine accurately its limitations and to meet certain theoretical objections. His conclusions, based on such a study, are as follows: 1. The procedure is best applicable to that portion of the intestinal tract when, in such cases as the one described, present methods are inadequate, namely, from the upper jejunum to the lower ileum. It may be rationally applied, however, to any portion of the bowel possessing a mesentery of sufficient length to admit of its ready execution. 2. Care must be exercised at the duodenum, upper jejunum and lower ileum not to produce kinks of the bowel. 3. In cases exhibiting a scanty deposit of fat in the mesentery, plication is a rapid, safe and efficient substitute for separation of the two peritoneal leaves. 4. Aside from a slight spiral rotation, which in view of peristalsis and the mobility of the parts is entirely insufficient to produce obstruction, the procedure has no demonstrable effect on the bowel lumen. 5. It can safely be extended to include nearly one-half the circumference of the bowel and 3 to 4 inches in continuity. There is no apparent reason why it should not be repeated as often as necessary at different levels of the intestinal tract. 6. In view of the rich vascular anastomosis and the mobility of both the bowel and its mesentery, if care be exercised in placing the sutures so as to avoid the trunk vessels, the effect on the circulation is negligible. 7. Stability and permanence of the coaptation is readily secured through intelligent disposition of the sutures.

3. **Puerperal Infection with Isolation from Uterus of B. Influenzæ.**—A simple laboratory method for making a hemoglobin or blood medium capable of growing the *B. influenzæ*, is the following worked out by Thalhimer. Freshly-drawn beef blood obtained from an abattoir is collected in a wide-mouthed jar and defibrinated by shaking with a number of medium-sized marbles. This is laked by adding an equal part of distilled water and rendered free from bacteria by passing through a sterile Reichel filter as above. This yields a beautiful, clear, red fluid and 20 to 30 c.c. of this are added to 1 liter of sterile melted agar at 45 C. and poured into sterile tubes. The medium which results is also perfectly clear, bright red and of the same density of color as ordinary blood-agar. On this medium two organisms which were unsuccessfully tested on the hemoglobin agar, were successfully passed through ten subcultures by Thalhimer. The growth occurred in twenty-four hours, and was typical of the *B. influenzæ*, occurring in small, discrete, dewdrop colonies. Smears showed the typical morphology. Pneumococcus, streptococcus, *Streptococcus mucosus* and gonococcus also grew luxuriantly. This method is a modification of former methods, notably that of Pfeiffer, and is believed to be the simplest yet devised for making blood-agar. Its chief advantage over that of Pfeiffer is that the laking agent is one which does not interfere with growth of bacteria and does not have to be removed. From 40 to 50 c.c. of this laked blood can be filtered in twenty-four hours through a Reichel filter of 50 c.c. capacity. Should a larger quantity be needed a larger filter can be used. It is evident that the hemolytic qualities of an organism cannot be tested with this medium.

4. **Hyperleukocytosis in Bronchopneumonia.**—At the first count made by Austrian in this case the leukocytes numbered 130,000 per c.mm. Seven hours later, the leukocytes were 144,000 per c.mm.; on the following morning they hal increased to 183,000 per c.mm. and that evening reached a maximum of 206,000 per c.mm. During the following four days they varied between 126,000 and 156,000, but with the onset of a mastoiditis again rose to 192,000 per c.mm.

Medical Fortnightly, St. Louis

August 10

7 Obstruction of the Male Urethra. H. J. Scherck, St. Louis.
8 Self-Limitation. D. L. Feld, Jeffersonville, Ind.
9 Pseudo-Hermaphroditism. H. J. Scherck, St. Louis.
10 Epidemic Influenza. T. G. Stephens, Sidney, Iowa.
11 Glaucoma. E. E. Clark, Danville, Ill.
12 Practical Comments. W. T. Marrs, Peoria Heights, Ill.

Archives of Diagnosis, New York

July

13 Diagnostics. G. K. Dickinson, Jersey City, N. J.
14 *[illegible] nd Often Enduring [illegible] rn, New York.
15 [illegible] G. K. Swinburne, New York.
16 Significance of the Wassermann Reaction in Gynecology and Obstetrics, Its Bearing on Question of Inheritance of Syphilis. A. Stein, New York.
17 Diagnosis, Etiology and Prognosis of Infantile Scurvy. E. M. Sill, New York.
18 Advances in Diagnostic Methods. J. H. Barach, Pittsburg, Pa.
19 *Differential Diagnosis Between True Tube-Casts and Pseudo-Casts in Urine. L. Heitzmann, New York.
20 Cystinuria. F. E. Sondern, New York.
21 Sources of Error in Diagnosis in Senile Cases. I. L. Nascher, New York.
22 Tuberculosis of the Spine; Diagnosis and Differential Diagnosis. I. D. Steinhardt, New York.
23 *Tuberculosis of the Mucosa of the Hard Palate. E. W. Dittrich, New York.
24 Diagnosis and Prognosis of Epidemic Infantile Paralysis. E. M. Sill, New York.

14. **Hyperthyroidism.**—There is no doubt at all in Stern's mind that many cases which, in a slipshod manner, are designated as neurasthenia or hysteria, are expressions of acute or chronic thyrotoxicoses. He says that a minor case of hysteria and an early or mild thyrotoxic state have many symptoms in common. Some of the rarer hysterical phenomena, as hysterical fever, or hysterical tremor together with accelerated cardiac activity, clinically viewed, appear to be the immediate result of hyperthyroidism. Elevation of temperature is one of the early, if not the earliest, objective symptoms of many instances of hyperthyroidism. It seems to be a much more constant manifestation in the mild than in the more pronounced instances of the affection. In many cases the mouth temperature is raised but 1 degree, or a fraction thereof; in others the increase amounts to 2 or even 3 degrees. In some cases the temperature fluctuates, with occasional intermissions, between 99 and 99.4 F. for months and even years; in others, the slightest exertion or excitement drives it up from 99 to 100 F., or thereabouts. In a majority of instances the lowest temperature is recorded after a night's rest; continued rest in bed will occasionally reduce the temperature to normal for a brief period. The usual discrepancy of about ½ degree F. between the mouth and rectal temperatures does not exist in all cases; in some cases the discrepancy is less than 0.3 degree, and in a few there does not seem to prevail any discrepancy at all. Tyrotoxic temperature elevation never reaches the extreme height of hysterical fever, but it is enduring for a longer period. While there generally ensues a rapid decline of hysterical pyrexia, the slight thyrotoxic temperature increase abates slowly, as a rule. Like the fever of hysteria, however, that of hyperthyroidism may start abruptly, and like the former it is liable to appear, or to become augmented, in the wake of any exertion or excitement. Hysterical pyrexia may be differentiated from thyrotoxic temperature elevation by the following three main factors, viz.: Hysterical fever does not, as a rule, concur with physical decline and emaciation, thyrotoxic temperature elevation usually does; the urine in instances of hysteric fever exhibits a small urea and phosphoric acid quotient, whereas in the presence of hyperthyroidism it is increased; hysteric pyrexia is usually not influenced by the administration of preparations of thyroid or iodin, while these drugs are liable to prolong or aggravate the thyrotoxic fever.

19. **Tube-Casts and Pseudo-Casts.**—Heitzmann emphasizes that a diagnosis of the presence of true tubular casts in the urine should under no circumstances be based on the findings of cast-like structures alone. Such structures must always be associated with other evidences of a pathologic condition, such as red blood-corpuscles, leukocytes or pus corpuscles and epithelia from the uriniferous tubules, before the diagnosis of a tube cast becomes admissible.

23. **Tuberculosis of Mucosa of Hard Palate.**—A man suffering from a pronounced pulmonary tuberculosis about two years ago noticed a small red spot on the right side of the palate about ¼ inch behind the posterior border of the palate. It increased somewhat in size, was extraordinarily painful and refused to heal after becoming ulcerated. He consulted a physician who, after treating it for a while, told him that he could not do any more for him. Another colleague cauterized it with nitric acid. It disappeared after being treated for some time. About four months ago it reappeared, spreading rapidly; it was then that he consulted Dittrich. During all this time he felt good and worked every day. He showed the following condition: On either side of the median line there were aggregations of small papules of the size of pin heads which were somewhat acuminate, only little inflamed, did not bleed on touch, and were separated by a deep median furrow. They were more marked on the right than on the left side. The lesions were sharply defined anteriorly and merged into the tissues posteriorly with but very slight inflammatory reaction. Behind the anterior border there was an ulceration on either side of the furrow; the one on the left was the larger in size. These ulcerations were triangular in shape, had irregular margins, were superficial and spreading peripherally. Their bases were red, painful and slightly bleeding on touch and were very little indurated, with margins that were only moderately inflamed and covered with a dirty grayish material. They were first touched with 25 per cent. lactic acid, but when this failed to make an impression, 95 per cent. phenol (carbolic acid) was resorted to. While the right ulceration responded to the application of phenol and disappeared soon, the left one showed a decided tendency to spread and proved to be very recalcitrant. The ulcers finally disappeared leaving very little scar tissue and a somewhat tunicated condition of the mucous membrane, the papular, i. e., tubercular condition, spread laterally, at last almost touching the alveolar processes. The microscope showed the following: the epithelium presented a moderate amount of edema. In the connective tissue directly beneath the epithelium were distinct, isolated collections of small, round cells, in the center of which giant cells were discerned.

Lancet-Clinic, Cincinnati

August 12

25 Health Conservation of Policy-Holders. D. Lewis, Chicago.
26 Hypertrophy of the Prostate. J. E. Cannaday, Charleston, W. Va.
27 Icterus Neonatorum. D. Millikin, Hamilton, Ohio.
28 Flap Splitting in Cleft Palate Operations. J. F. Baldwin, Columbus, Ohio.
29 A New Departure. J. H. Landis, Cincinnati.

Annals of Surgery, Philadelphia

August

30 Case of Bilateral Temporomaxillary Ankylosis with Original Method for Approaching the Temporomaxillary Articulation. H. Lilienthal, New York.
31 Variations in the Anatomy of the Naso-Lachrymal Passages. J. P. Schaeffer, Ithaca, N. Y.
32 Nerve Supply of the Anterior Abdominal Wall and Its Surgical Importance. J. P. Hoguet, New York.
33 Apparatus Designed to Facilitate Pelvic Surgery by Approximating the Abdominal Wound to the Depth of the Pelvis. W. H. Taylor, Port Arthur, Ontario.
34 *Penetrating Wounds of the Abdomen. J. R. B. Branch, Macon, Ga.
35 Congenital Hypertrophic Stenosis of the Pylorus. R. Coombe, London.
36 Simplified Gastro-Enterostomy Clamp. W. Bartlett, St. Louis.
37 Pathology and Symptomatology of Cholelithiasis. A. J. Walton, Greenwich.
38 Double Gall-Bladder Removed by Operation. J. Sherren, London.
39 Primary Ovarian Pregnancy. C. F. Kivlin, Troy, N. Y.
40 *Treatment of Tumors of the Urinary Bladder with the Oudin High-Frequency Current. E. Beer, New York.
41 Approximation of the Ends of Fragments in Fractures with Contraction of Attached Muscles. P. B. Magnuson, Chicago.
42 Simple Fracture of the Pisiform Bone. R. B. Deane, Calgary, Canada.
43 Germicidal and Osmotic Actions of Picric Acid. O. W. H. Mitchell, Columbia, Mo.

34. Abstracted in THE JOURNAL, May 27, 1911, p. 1603.

40. **Oudin Current for Bladder Tumors.**—Beer has treated successfully up to date five cases of primary papillary tumors of the bladder, aggregating nine distinct tumors, with this new method. In addition he has treated two cases of recurrent papillary tumor of the bladder. One patient is still under treatment, and a large part of the very extensive growth has been thrown off. The original tumor was excised some years ago and was diagnosed as carcinoma by a competent pathologist. The other recurrent case could not be treated adequately, as the old suprapubic wound opened up and the patient gradually developed a fatal renal insufficiency. As the result of one treatment in this case, larger pieces of the papillary growth sloughed away, as in all the other cases. In two undoubted cases of carcinoma of the non-papillary type results were negative. Beer introduced the Oudin current through a catheterizing cystoscope. In the case of a patient 81 years old the condition was considered inoperable. The large papillary growth made up of three confluent tumors surrounded the right ureter. To remove the growth and reimplant the ureter would have been too severe a strain for this anemic old woman. In eight seances aggregating thirteen and a fourth minutes' application of the Oudin current, the tumor was painlessly destroyed and the patient has been completely restored to health. There is no sign of recurrence. In a second case there was a fair-sized sessile growth which was bleeding very actively. The very first application and the very first treatment controlled this, so that the urine was absolutely clear twelve hours after the treatment and has remained so ever since. There is no sign of recurrence.

Journal of Arkansas Medical Society, Little Rock

June

44 Family Physician, Then and Now. T. F. Kittrell, Texarkana.
45 Progress in Dermatology and Syphilology. S. E. Steer, Hot Springs.

Medical Herald, Kansas City

August

46 *Tuberculosis Treated with Carl Spengler's Tuberculosis Immune Blood. G. N. Ryan, Des Moines, Iowa.
47 Congenital Cystic Kidney. W. J. Frick, Kansas City.
48 *Care of the Hypertrophied Prostate. F. H. Clark, El Reno, Okla.

46. **I. K. (Spengler) Treatment of Tuberculosis.**—Very satisfactory results have been obtained from this method of treatment by Ryan. He reports forty-three cases.

48. Abstracted in THE JOURNAL, April 15, 1911, p. 1142.

West Virginia Medical Journal, Wheeling

August

49 Cancer of Uterus. O. F. Covert, Moundsville.
50 Surgery of the Tonsil. F. L. Hupp, Wheeling.
51 Local Anesthesia in Throat Operations. H. Lesieur, Chicago.
52 Skin Antisepsis. R. J. Hersey, Wheeling.
53 Ethical Hints. W. E. Neal, Huntington.
54 Dechlorination Cure. J. M. Lovett, Huntington.

Journal of Cutaneous Diseases, New York

August

55 *Etiology of Lupus Erythematosus. D. Friedlander, San Francisco.
56 St. Louis Museum for Diseases of the Skin. D. W. Montgomery, San Francisco.
57 Relationship of Vaccine Therapy to Treatment of Certain Diseases of the Skin. D. K. Smith, Toronto, Canada.

55. **Lupus Erythematosus.**—That the disease is not tuberculous *per se*, is evident to Friedlander, but the question as to whether it is due to a tuberculous or other toxin, he says, is not so clear. Probably the truth lies somewhere between the two extremes; that is to say, that the disease is caused by a toxin, carried by the blood, as evidenced by the fact that the blood-vessels are the first structures to be affected, and while tuberculosis or a tuberculous inheritance may predispose to lupus erythematosus by lowering the general resistance, it is certainly more of a predisposing than a causative factor. That it is a constitutional affection is clearly shown in those cases which pass over into the acute fulminating type, in which the patient shows all the symptoms of a profound toxemia with involvement of various internal organs, especially the kidneys; but the cause of the toxemia cannot be laid to any single toxin. That feeble or deranged circulation, trauma and irritation, are factors in the causation of this affection is also evident, but whether the toxemia precedes the local irritation and the external lesion is the exciting factor, or whether the skin damage by the external lesion presents less resistance than the remaining cutaneous envelope to the circulating factor, is a question to be determined.

Southern Medical Journal, Nashville

August

58 Treatment of Pellagra. C. C. Bass, New Orleans, La.
59 *Typhoid, with Case of Double Perforation. H. M. Folkes, Biloxi, Miss.
60 Rutherford, Mobile, Ala.
61 * of Anterior Poliomyelitis. R. C.
62 *Surgical Treatment of Hepatic Cirrhosis. A. A. Herold, Shreveport, La.
63 Case of Gunshot Wound of Abdomen and Chest, Penetrating Stomach, Liver and Lung. F. G. Dubose, Selma; Ala.
64 *Review of Fifty-Eight Consecutive Operations for Fibroid Tumors of the Uterus. E. G. Jones, Atlanta, Ga.
65 Surgery of the Ovaries. J. A. Crisler, Memphis, Tenn.
66 The Eye, and Its Relation to Medical Inspection of Schools. F. P. Hoover, Jacksonville, Fla.
67 Treatment of Wounds, Surgical Dressings and Applications. L. Sexton, New Orleans, La.
68 *Episcleritis. O. Dulaney, Dyersburg, Tenn.
69 The American Medical Association: Its Organization, Its Policies and the Present Status of Its Work. M. Rogers, Birmingham, Ala.
70 Relation of Physicians to Life Insurance. W. D. Jelks, Birmingham, Ala.

59 and 62. Abstracted in The Journal, Dec. 3, 1910, pp. 2006 and 2007.

61. Abstracted in The Journal, June 17, 1911, p. 1841.

64. Abstracted in The Journal, May 27, 1911, p. 1603.

68. Abstracted in The Journal, Nov. 26, 1910, p. 1920.

Journal of Medical Society of New Jersey, Orange

August

71 Our Profession: The Progressive Changes of Forty Years. E. Hollingshead, Pemberton.
72 *Chronic Gastritis of Secondary Origin Presenting the Phenomenon of Achlorhydria Hemorrhagica Gastrica. J. T. Pilcher, Brooklyn, N. Y.
73 Poliomyelitis Anterior. G. E. Day, Collingswood.
74 Hospitals, Their Use and Abuse from General Practitioner's , Riverton.
75 s: Their Value, Potency and Danger.

72. Abstracted in The Journal, July 22, 1911, p. 306.

Journal of Experimental Medicine, New York

August

76 *Method for Pure Cultivation of Treponema Pallidum (Spirochæta Pallida). H. Noguchi, New York City.
77 *Phagocytic Immunity in Pneumococcus Infections, and in Pneumonia with Relation to the Crisis. S. Strouse, Chicago.
78 *Infection of Rabbits with the Virus of Poliomyelitis. H. K. Marks, New York City.
79 *Ultimate Result of a Double Nephrectomy and the Replantation of One Kidney. A. Carrel, New York City.
80 *Patching of the Abdominal Aorta with Piece of Rubber. A. Carrel, New York City.
81 Cultivation of Tissue in Plasma from Alien Species. R. A. Lambert and F. M. Hanes, New York City.
82 *Studies on Immunity in Cancers of the White Rat. I. Levin, New York City.
83 Mechanism of the Formation of Metastases in Malignant Tumors. I. Levin and J. Sittenfield, New York.
84 Experimental Obstructive Jaundice. J. H. King, J. E. Bigelow and L. Pearce, Baltimore.
85 Formation of Precipitates in the Blood in Vitro by Acid Salvarsan Solutions. D. R. Joseph, New York City.
86 Experimental Immunity with Reference to Bacillus of Leprosy. C. W. Duval and F. B. Gurd, New Orleans.
87 Further Observations on Certain Features of Experimental Syphilis and Yaws in the Rabbit. H. J. Nichols, U. S. Army.

76. **Pure Cultivation of Treponema Pallidum.**—Noguchi reports the positive reproduction of syphilitic lesions in rabbits by means of pure cultures of *Treponema pallidum.* He employed the spirochete-containing testicular tissue of rabbits which had been inoculated with human syphilitic material for the purpose of cultivating the pallidum. The culture medium used was a serum water (sheep, horse, rabbit) to which a piece of sterile rabbit tissue is added. The rabbit tissues best adapted to this purpose are the kidney and testicle. The heart muscle is also good, but liver is unsuitable, since it is not only difficult to obtain in a sterile condition, but even when sterile, supplies enough carbohydrates to render the medium strongly acid in cases in which certain bacteria are simultaneously cultivated. Strict anaerobic conditions are very important in obtaining the first generation of pallida. To obtain the first generation of the *Treponema pallidum* in virulent form, the following conditions are essential: (1) the presence of suitable fresh sterile tissue in serum water; (2) strict anaerobiosis; (3) a slightly alkaline reaction as furnished by the serum and tissue, and (4) a temperature of about 35 to 37 C. The presence of agar or gelatin seems to interfere with the successful growth of the first generation of the spirochetes. On the other hand, when once adapted to the artificial serum-water tissue medium, the pallidum grows well under less strictly anaerobic conditions. In fact, certain strains even grow well in a medium containing agar, provided that suitable fresh tissue is placed low down in a high column of medium (serum-water or serum-agar), and that it is covered with paraffin oil. Certain pallidum strains refuse to grow in a solid medium for several generations, and none of Noguchi's pallidum strains grew in any medium without the presence of tissue. Thus all the pure pallidum strains are being cultivated in a tissue-containing medium. Out of ten strains of *Treponema pallidum,* six have been cultivated in the serum-water tissue medium. Except in one instance, the pallidum has grown together with other bacteria. So far only two strains of pure cultures have been carefully tested for their virulence. Both strains have produced typical lesions in the testicle of the rabbit.

77. **Phagocytic Immunity in Pneumococcus Infections.**—Strouse endeavored to show through animal experiments, that phagocytic immunity is to a high degree specific for the organism used in immunization, and that the amount of opsonin produced in the process depends to a great extent on the virulence of the organism. The negative results obtained with post-critical sera do not mean that opsonins may not be present (five positive cases indicated their presence), but they emphasize strongly the fact that they are not formed to any great extent. Therefore, this study adds further support to the view that although opsonic immunity is produced in pneumonia, it is not the only means of defense possessed by the body, and by itself it cannot explain the crisis.

78. **Infection of Rabbits with Virus of Poliomyelitis.**—The experimental results obtained by Marks would, it seems, leave no doubt that the virus of poliomyelitis can be propagated in certain individual rabbits, at least through a limited series of inoculations. They also show that the virus is not confined to the central nervous system in these animals, but occurs, perhaps in equal amount, in other organs—certainly in the liver and spleen.

79. **Double Nephrectomy and Replantation of One Kidney.**—A dog, after having undergone a double nephrectomy and the replantation of one kidney lived in excellent health for almost two and a half years. She died of an intercurrent disease which was without relation to the operation. The autopsy showed the kidney to be normal. Hence Carrel says the experiment proves definitely that the extirpation of the kidney in the dog, its perfusion with Locke's solution, the complete interruption of its circulation for fifty minutes, and the suture of its vessels and ureter do not interfere with its functions, even after a long period of time, and it indicates that from a purely surgical standpoint, the grafting of organs is a real possibility.

80. **Patching of Abdominal Aorta with Rubber.**—In two recent experiments Carrel attempted to patch an artery with inorganic and organic foreign substances in order to ascertain whether they can be used in the reparation or in the permanent intubation of large vessels. Under ether anesthesia a segment of glass tubing, about five centimeters long, coated with paraffin was introduced into the abdominal aorta of a dog. The pulsations of the femoral arteries remained normal. Six days after the operation, the animal was allowed to run. Paralysis of the posterior limbs developed and the pulsation of the femoral arteries disappeared. It was thought that the glass tubing had been displaced by the movements of the animal and that coagulation had occurred. Laparotomy was performed, the tube extirpated, and the aortic circulation reestablished. The glass tubing was obliterated by a soft clot of recent formation. But it was found that the glass wall, inside of which circulation had taken place for six days, was covered by a thin, whitish membrane. A tube having the appearance of a thin-walled artery could be extracted from the glass tubing. Microscopic examination showed that it was composed of a dense fibrin infiltrated by many leukocytes. Carrel thinks it is probable that if the dog had been quiet and the glass tubing had not been displaced, the fibrinous

tube would have become organized and would have formed inside of the glass tubing a new intima, in the manner of the canalization of a dissecting aneurism. In the second experiment, a piece of the anterior wall of the abdominal aorta was resected and replaced by a piece of rubber.

Experiment.—A medium-sized male dog. Feb. 7, 1910, 9:45 a. m., under ether anesthesia, transversal laparotomy; intestines wrapped in greased silk towels and a wool blanket. 10:05 a. m., dissection of the abdominal aorta below the renal arteries. Interruption of the circulation by two Crile forceps placed about 4 cm. from each other. Resection of a small piece of the anterior wall of the aorta. The opening was about 20 mm. long and 12 mm. wide. It was patched by a piece of thin rubber. At 10:36 a. m., the circulation was reestablished. There is some leakage at the line of suture, which is easily controlled by a few stitches. The abdomen is closed and the operation completed by 11:00 a. m. After the operation, there was no modification of the femoral pulse, and the animal remained in excellent health. May 26, 1911, the femoral pulse and the aortic pulsations were normal. There was a slight thickening of the anterior wall at the level of the patching, and the artery adhered to the thoracic duct. About fifteen months later the aortic segment bearing the rubber patch was extirpated and examined. The lumen of the vessel was normal; the wall was thickened. On the external side of the aorta there was no evidence of the patch, and the adventitia was thicker than normally. The intima was smooth and glistening. The piece of rubber was present in the wall. On its external side, a new adventitia had developed, while its internal side was covered by a thick layer of internal tissue. The experiment indicates, therefore, that a foreign inert substance, under certain conditions, does not produce an obliterative thrombosis, but can, indeed, be used in the reparation of the wall of a large artery.

82. **Immunity in Cancers of White Rat.**—Levin concludes that immunity to cancer growth is due to an active inhibitory influence of some substance present in the body fluids of the immune host, and not to any purely cellular activity. Immunity to growth of cancer must be very similar to, though not identical with, immunity in bacterial disease.

Mississippi Medical Monthly, Vicksburg

August

88 *Inguinal Hernia. J. Darrington, Yazoo City.
89 *Conservative Treatment for Advanced Cases of Carcinoma of Uterus. J. W. Barksdale, Winona.
90 *Diagnosis and Treatment of Chronic Affections of the Hip. W. C. Campbell, Memphis, Tenn.
91 *Some Unavoidable Postoperative Complications. J. A. Crisler, Memphis, Tenn.
92 *Some Unusual Symptoms in Malaria. B. F. McNeal, Ezra.

88, 89, 90, 91 and 92. Abstracted in THE JOURNAL, May 27, 1911, pp. 1611 and 1612.

American Journal of Obstetrics and Diseases of Women and Children, New York

August

93 Physical, Mental and Social Hygiene of the Growing Girl. J. R. Goffe, New York.
94 Dysmenorrhea Relieved by Nasal Treatment. J. Brettauer, New York.
95 *Malformation of the Female Genitalia. C. B. Miller, Washington, D. C.
96 Duties of the Gynecologist in Relation to the State Control of Vice. J. Milton Mabbott, New York.
97 Successive Tubal Pregnancies. M. Rabinovitz, New York.
98 Case of Hypernephroma. G. T. Vaughan, Washington, D. C.
99 *Case of Eclampsia. D. W. Prentiss, Washington, D. C.
100 *Abstraction of Calcium Salts During Pregnancy. J. G. Drennan, Arrochar, N. Y.
101 *Shock in Eclampsia. H. C. Bailey, New York.
102 *The Plaster Lace. H. Grad, New York.
103 *Double Dermoids and Pregnancy. W. P. Manton, Detroit.

95. **Malformations of Female Genitalia.**—In one case cited by Miller the malformation was a typical one of bicornuate uterus in which the septum had extended not only between the uterine chambers, but had also divided the vagina into two halves. A second case was one of congenital absence of uterus and vagina. Immediately below the external inguinal ring in the upper portion of the labium majus on each side was a small oval body the size of an ovary. These bodies were sensitive to pressure, but did not swell periodically and were not the seat of pain except on pressure. The inguinal canals were not patulous and there was no impulse on coughing. Miller took these bodies to be misplaced mal-developed ovaries. The case was apparently one of congenital absence of vulva, vagina, uterus and tubes, with misplaced rudimentary ovaries. The third case was one of pyocolpos due to atresia of the hymen. The fourth case was one of congenital atresia of the vagina and external os uteri. All of these patients were of the white race. Miller has seen only one congenital malformation in the negro race and that was of a minor character. It was a transverse septum not complete about halfway up the vagina.

99. **Eclampsia.**—In Prentiss' case there was a preeclamptic toxemia and postpartum eclampsia, the patient having one convulsion the day after delivery.

100. **Abstraction of Calcium Salts.**—Drennan says that if the abstraction of calcium salts from the mother's blood by the fetus is the cause of puerperal eclampsia in the former, then the eclamptic mother should not nurse her infant.

101. **Shock in Eclampsia.**—Bailey records certain observations made on six eclamptic and preeclamptic cases with special regard to the shock attendant on delivery and the shock caused by drugs used for the rapid reduction of blood-pressure. He found that rapid emptying of the uterus in eclampsia frequently produces a decrease in blood-pressure amounting to 100 mm. of Hg, causing a condition of collapse or shock. Veratrum viride given to its full physiologic effect may cause a drop of 145 mm. of Hg. in the blood-pressure, producing shock. The administration of veratrum viride combined with emptying the uterus in eclampsia may produce such profound shock that the patient cannot recover. While it is probable that the high blood-pressure of eclampsia is one of Nature's protective mechanisms, still if it is deemed advisable to lower it, nitroglycerin and erythrol tetranitrate should be used for their action is on the peripheral vessels and not on the medullary centers. One of the best means of temporarily lowering blood-pressure in antepartum or intrapartum eclampsia is the emptying of the uterus. The blood-pressure observations in Bailey's cases showed a marked hypotension immediately after delivery, and if it is deemed desirable to lower the blood-pressure in this disease, Bailey says, the best method would be the delivery of the child, but the question comes up as to the advisability of reducing blood-pressure in these cases. The system is nearly overcome by the circulation of some toxin or toxins and it is an open question as to whether the rise in blood-pressure is not one of Nature's protective mechanisms. If the blood-pressure is to be lowered why not dilate the splanchnic area without depressing the medullary centers. Dilation of this area is accomplished by an anemia of the brain which would be very desirable. Nitroglycerin, in 1/50 gr. dose, will depress the blood-pressure 11 to 14 per cent. within five minutes when given by mouth and action begins to take place within two minutes. Together with the nitroglycerin, 2 gr. of erythrol tetranitrate should be given because its action begins when the nitroglycerin action wanes and the depression of the blood-pressure is continued for about three hours. These drugs are especially active in high blood-pressure, and a single dose of each of them would bring the high pressure seen in these cases well within the limits of safety.

102. **Plaster Lace.**—Grad's method consists in coaptating the skin incision by lacing instead of suturing. To prepare the plaster lace two pieces of Z. O. adhesive plaster, 6 by 8 inches long, are pasted on a glass bottle 4 inches in diameter. Hooks used by dressmakers are then sewed to the edge of the plaster 1 inch apart. The flask with the plaster attached is then wrapped up securely and sterilized in a steam sterilizer. After the sterilization the plaster is ready for use. To facilitate the removal of the plaster, hot water is poured into the bottle, when the plaster can be stripped off from the glass easily. After the peritoneum and fascia are closed, the wound is dried and all bleeding stopped. The skin for 8 to 10 inches on either side of the wound is dried with ether. The plaster is then placed so that the hooks are an inch away from the edge of the skin incision and is made to adhere firmly to the

integument. With a suitable piece of sterile tape the lacing is begun in the center of the wound, as it is easier to close the wound smoothly if the lacing is begun in the center. The tension is adjusted so as to bring the edges of the wound in apposition, care being taken not to allow the edge of the skin to fold under or to overlap. The wound is then dried and a suitable dressing applied. Twenty-four hours later the wound should be inspected and the dressing changed, as it will be found that the gauze next to the skin is soiled by the drainage from the wound. The plaster lace is allowed to remain on the skin for some ten to twelve days, and in the meanwhile the wound can be inspected as often as may be desired. By the use of this method of closure the incision remains uncovered and admits of inspection at any time. The coaptation of the wound is under absolute control, as the tension of the wound can be regulated to a nicety. The scar is threadlike. There is no skin suturing and consequently no stitch abscesses.

103. Abstracted in The Journal, June 24, 1911, p. 1912.

St. Paul Medical Journal, St. Paul

August

104 Value of the Periodic Holiday. J. Knott, Dublin, Ireland.
105 Extraction of Lens in Its Capsule. Smith Operation. J. C. Harding, St. Paul.
106 The Undeveloped Field in the Life Insurance Business. H. J. Messenger.

Colorado Medicine, Denver

August

107 Laboratory Methods Adapted to Country Practice. C. N. Needham, Grand Junction, Colo.
108 Cerebellar Abscess of Otitic Origin. F. R. Spencer, Boulder, Colo.
109 *Narcotic Addiction and Its Treatment. E. W. Knowles, Greeley, Colo.
110 Case of Rheumatoid Arthritis of Almost Undoubted Syphilitic Origin. L. W. Ely, Denver.

109. **Narcotic Addiction.**—The following treatment has been used by Knowles for several years with good results: when the patient comes for treatment he is required to give up what morphin or other drugs he has with him, and he is given whatever drug he may need to make him comfortable during the first or primary stage. When the second or active stage is begun, the drug is withdrawn at once. On admission give one tablet of the following formula, at two-hour intervals until five are taken:

℞	Gm. or c.c.		
Hydrargyri chloridi *mitis*		13	gr.ii
Podophylli		01	gr.1/6
Phenolphthalein		06	gr.i
Atropinæ sulphatis		0003	gr.1/200
Strychninæ nitratis		0017	gr.1/40

Three hours after the last tablet has been taken give 5 ounces of a saturated solution of magnesium sulphate, or 3 ounces of castor oil. If the bowels do not move freely within two hours, repeat the dose. This Knowles has not found necessary unless the patient had loaded up *on morphin* before coming in. A high enema should be given a short time before starting the active treatment. It is absolutely necessary for the bowels to respond freely at this time. The treatment is discontinued until they do. Purging does these patients good instead of harm. During this stage *no food* is to be given until the bowels have been thoroughly emptied. After this a full tray may be given, and when this has digested the patient is ready for the active treatment.

From now on, Knowles says, the patient should be in bed, and the narcotic should be withdrawn. Give the patient hypodermically 8 drops of the following solution:

℞	*Gm. or c.c.*		
Hyoscinæ hydrobromatis		013	gr.1/5
Pilocarpinæ nitratis		12	gr.ii
Strychninæ nitratis		013	gr.1/5
Aquæ	16		ʒiv

Repeat the dose at half-hour intervals until the patient is asleep. This usually requires from two to three doses. On awakening repeat the dose, no matter how *comfortable* the patient feels. From now on govern the dose and time of giving by the patient's condition. Give enough to keep him asleep or quiet, or in a mild belladona intoxication. If this condition be kept up there is no suffering. The dose may have to be increased to 10, 12 or 15 drops, and the interval will vary from two to five hours. Never after the first sleep is it necessary to repeat the dose oftener than every two hours.

When the sleep becomes natural, and no nervousness, jerking or twitching of the muscles is present, the medicine may be stopped. This will require from sixty to ninety-six hours, depending on the condition, the daily dose and the duration of the addiction. Another important sign is that the patient acquires a tolerance for the prescription with the passing of the withdrawal symptoms. Green stools should appear at this time. When the patient awakens from his first sleep, which is from three to five hours after the hypodermic has taken effect, give 1 grain of calomel every three hours until 8 grains are taken, and at the end of the thirtieth hour give 3 ounces of castor oil or 5 ounces of a saturated solution of sulphate of magnesia, and repeat in two hours if free action is not obtained. At the end of the fifty-sixth hour repeat the dose of oil. When this acts the green stools should appear. If it be found necessary to continue the treatment beyond the seventy-second hour, give a like dose of oil or saline. It is important that the bowels move and move freely at these intervals. If this treatment be carried out to the letter, the patient should sleep through the entire time, only awakening to go to the toilet, or for his bath or to be given food.

Milk or other liquid food should be given at regular intervals during the entire active stage. Acids should be avoided as the stomach shows a hyperacidity. It is an excellent plan after the first twenty-four hours to give sodium bicarbonate every four hours, especially if there is a tendency to vomit. Hot tub baths are given every morning, followed by an alcohol rub. Hot packs may be given to the strong and robust to help elimination. When the habit is once broken, the return to health is rapid and sure, and an otherwise healthy patient is able to resume his ordinary vocation. The after-treatment with a great many consists of attention to the bowels, good nourishing food, moderate exercise and plenty of sleep. Do not give alcoholic stimulants, for the administration of stimulants is always followed by a depression, which gives rise to a desire for another dose of the stimulant.

Bulletin of the American Academy of Medicine, Easton, Pa.

August

111 *Latest Improvement in Medical Education—Prevention. C. S. Sheldon, Madison, Wis.
112 The Medical Profession and Community Social Work. F. Almy, Buffalo.
113 Possibilities of Social Service Open to Hospitals and Dispensaries. J. R. Shillady, Buffalo.
114 Social Service in the Work of a Hospital for the Insane. A. W. Hurd, Buffalo.
115 Potential Educational Influence of Hospitals. I. S. Wile, New York.

111. Abstracted in The Journal, July 22, 1911, p. 311.

Texas State Journal of Medicine, Fort Worth

August

116 Goiter and Its Surgical Treatment. C. H. Harris, Fort Worth.
117 Clinical Pathology and Surgical Phases of Goiter. W. D. Haggard, Nashville, Tenn.
118 *Simple and Safe Method for Performance of Partial Thyroidectomy. L. Freeman, Denver, Colo.

118. **Partial Thyroidectomy.**—In Freeman's method the gland is exposed through an ordinary collar incision, and the lobe to be removed is dislocated. In the average case there is but little hemorrhage or risk of any kind. Two pieces of wire are then cut, some inches longer than the length of the thyroid. Several loops (usually three) of strong, heavy catgut are next passed directly through the lobe, near the base, from one side to the other—one near each end, and one or more between these, according to the size of the gland. The loops are most conveniently inserted by plunging alligator forceps through the thyroid substance and grasping a strand of gut by its center; although a blunt needle, threaded with both ends of the loop, may be employed instead. A wire is then placed longitudinally along each side of the base of the lobe, passing through the loops on one side and between their free ends on the other. These are held at each end by the fingers of an assistant, thus firmly compressing the glandular substance while the free ends of the loops are being tied firmly over their corresponding wire. Additional

security may be obtained at each extremity by taking a turn around the projecting portions of the wires with the remaining ends of the loops after the first knots are tied. In some cases, especially when the goiter is a large one, the loops may be made double, thus increasing their holding power. When the wires are once in position they cannot slip or become displaced in any way because they are securely held by the catgut loops passing through both glandular substance and capsule. Their pressure is great enough, when properly applied, to check the circulation, so that the gland may be shaved off beyond them like a piece of cheese, without the slightest hemorrhage and with a satisfying sense of security. A small margin should be left, as a support for the wires and sutures.

The glandular stump is now replaced in its original position by the side of the trachea, the upward projecting ends of the wires being previously removed with wire-cutters. When necessary, the long ends of the wires, projecting downwards, are then bent forwards by means of pliers, in order that they may pass easily through the wound and over the upper end of the sternum without pressure on the skin. The various tissues are now united over the thyroid stump; the ends of the wires passing through the center of the skin wound, between the stitches and down over the sternum. They must be long enough to prevent the possibility of slipping beneath the skin, and, as a further precaution, their ends can be bent into a loop, through which a small strip of gauze may be pulled.

In applying the dressings a layer of gauze is placed beneath the wires in order to protect the skin. Other drainage than that afforded by the wires is unnecessary.

In a few days the wires become loosened, through absorption of the catgut and shrinkage of the compressed tissues, when they can easily be pulled out, the small opening through which they emerged soon closing spontaneously. They produce no particular discomfort, the patient being able to get up and walk about as freely as if ordinary drainage tubes had been employed.

The advantages of the method are said to be: (1) It is easily and quickly done. (2) The control of hemorrhage is complete. (3) There is no danger of injuring the recurrent laryngeal nerves or the parathyroid bodies. (4) There is reason to think that the uniform pressure may prevent the exudation of glandular secretion, a point of some importance in exophthalmic goiter. (5) Any desired amount of glandular substance can be excised from one or both sides, without danger of removing or leaving too much. (6) The wires do not crush the tissues—they simply compress them enough to control hemorrhage and stop the exudation of glandular secretion.

Military Surgeon, Washington

August

119 Influence of Rice Diet and Inanition on Production of Multiple Neuritis of Fowls and Its Bearing on Etiology of Beriberi. W. P. Chamberlain, H. D. Bloombergh and E. D. Kilbourne, U. S. Army.
120 The Army Hospital Corps: How Can Its Efficiency be Increased? G. M. Ekwurzel, U. S. Army.
121 Wassermann Reaction in Syphilis, Leprosy and Yaws. H. D. Bloombergh, U. S. Army.
122 Sick Report and Efficiency of the Army. Caduceus.
123 Report of Sanitary Conditions at Maneuver Camp, San Antonio, Texas. F. W. Foxworthy.
124 Duties of the Executive Surgeon of a Naval Hospital. E. H. Green, U. S. Navy.
125 The Antiseptic Value of Iodin in Surgery. J. S. Neate, Washington, D. C.
126 Report on Low Country Fever Diagnosed as Dengue. C. H. Halliday, U. S. Army.
127 An Oral Lesson in Apparently Cured Syphilis. G. I. Jones, U. S. Army.

Interstate Medical Journal, St. Louis

August

128 Lesions of the Mid-Brain, with Special Reference to the Benedict Syndrome. S. E. Jelliffe, New York.
129 Knee-Joint Tuberculosis in Adults. E. W. Ryerson, Chicago.
130 Few Points on the Morbidity and Mortality of the Newly-Born Infant. J. Zahorsky, St. Louis.
131 Estivo-Autumnal Malaria with an Unusual Anemia. L. M. Warfield, Milwaukee.
132 Treatment of Cancer High in the Rectum. C. B. Davis, Chicago.
133 Excision of the Clavicle for Small Round-Celled Sarcoma, in Child of Nine Years. N. B. Carson, St. Louis.
134 One Hundred Cases of Syphilis Treated with Salvarsan. F. C. Edgerton, New York.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

August 5

1 School Health. F. E. Fremantle.
2 *Cancer. C. J. Bond.
3 Diffused Cancer of the Female Mammary and Thoracic Integument. G. T. Beatson.
4 *Toxemia of Uncertain Origin and Its Treatment by Sea-Water Injection. I. C. Maclean and L. de C. Harston.
5 Angina Sine Dolore and Gastric Deflation. H. W. Verdon.
6 Melanotic Sarcoma of the Liver, Secondary to a Melanotic Sarcoma of the Eye Removed by Operation Ten Years Previously. C. H. Lilley.
7 Case of Congenital Hematoma. S. Sheill.

2. **Cancer.**—This paper is an analysis of the conditions under which the new cell characters which we associate with cancer arise in somatic cells; to inquire whether the three conditions which accompany variation and selection among other organisms are also concerned in the evolution of cancer. These are: (1) struggle for existence among cells; (2) cell proliferation; and (3) cell destruction. Bond describes blastomatosis as an adaptive response on the part of individual cells, or cell groups, to environmental change of three kinds: alteration in the stimuli which reach the cell from the outside world; alteration in nutrition; alteration in the activities of the other cells which compose the organism. This adaptive response may be "indirect," the result of variation among the cells exposed to the changed conditions, accompanied by selection of an intercellular kind, or it may be "direct," and the result of a process of variation in the physiologically differentiated parts which compose the individual cell, accompanied by selection of an intracellular kind, in which case it represents a "use acquirement." The new cell characters which so arise may be grouped in two main divisions—one characterized by typical growth, including all the histologic varieties of benign neoplasms from teratoma to neuroma, the other characterized by atypical growth including the malignant types. But between these two groups there are numerous tumors composed of cells presenting transitional characters. Yet, again, the second group, characterized by atypical growth, may be divided into neoplasms composed of cells of epithelial type, and neoplasms composed of cells of connective-tissue type. And between these two groups there are again connecting links, for the malignant tumors which arise from cells of primary mesoblastic and secondary epithelial origin tend to exhibit transitional characters.

Of the two factors concerned in the origin of malignant growth (cell potentiality and environmental influence), environmental influence plays a large part in the genesis of cancer, cell potentiality in the genesis of sarcoma. Of the environmental factors concerned, outside stimuli exert a much larger influence in the genesis of epithelial than of connective-tissue cancer. Bond believes that a comparison of this theory with others at present held shows that cancer, like all "new growth," must be regarded in the light of a response of an adaptive kind on the part of certain cells or cell-groups of varying potentiality, to changes in their environment. It suggests that in epithelial cancer, at any rate, this response takes place under the same conditions as those which are associated with the occurrence of variation and selection among other organisms when exposed to environmental change and where evolution of new characters is taking place, especially in response to changes in the external environment. And the suggestion is therefore made that blastomatosis, including cancer and certain other forms of cell multiplication, takes place under the influence of the same evolutionary factors, namely, variation and selection of the "inter-" or "intra-" cellular kind.

4. **Toxemia of Uncertain Origin.**—The symptoms in this case pointed to some inflammatory infection and possibly ulceration of the bowel, chiefly in the region of the cecum and ascending colon. There were some enlargement and tenderness of the liver. Drugs and vaccine-therapy failed utterly to give relief. Finding that in spite of all treatment the patient was losing ground rapidly, the sea-water injection was given, beginning with 25 c.c. of sea-water (plasma marina), injected und

similar milder attacks which "blew over." The discovery of gall-stones, however, possibly accounted for the previous disturbances. One patient said he had had occasional gall-stone colics but no evidences of cholelithiasis were found at necropsy. The sudden intense pain was sometimes accompanied by vomiting and retching but the most characteristic feature is the shock-like, systemic depression while the abdominal findings do not suggest peritonitis of such severity as to account for it. The heart and kidney functioning suffer intensely and death may occur within a few hours or at once.

50. **Gastric Endothelioma.**—Jørgensen reports a case of successful resection of half of the stomach on account of an endothelioma in a woman of 58. The first symptoms had been noted two or three months before, an occasional sensation of oppression in the epigastrium, but with no connection with the meals, no eructation, vomiting or hemorrhage, but for a year there had been a few days of diarrhea every two or four weeks, and she consulted a physician on account of the intestinal trouble. He found a palpable tumor and she gained several pounds at once after the operation and had been in perfect health during the thirteen months since. Jørgensen states that he has been able to find only four certain cases of gastric endothelioma on record. The description of the microscopic findings in Maylard's and Anderson's case (1910) does not justify the assumption of endothelioma according to his opinion, and neither do the four cases published by Fick, Cignozzi, Aldegarman and Meinel. The only ones he accepts are those of Jungmann, Hansemann, Ssobolew and Donath, one in a woman of 28. Although the tumors were small yet there was extensive metastasis in this and in Donath's case. In one of these and in Jørgensen's own case the tumor was a solitary round growth, in another it was multiple and in Donath's case a flat cake, more like an adenocarcinoma.

51. **Coasting and Snow-Shoe Accidents.**—Saar describes the mechanism and aspect of the various fractures liable in these sports, and says that they throw light on fractures in general, as he explains in detail.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 1, XLI, No. 19, pp. 657-688

57 Definition of Hysteria. Dubois.
58 Sphygmometry. (Die Schulthess'sche Sphygmometrie.) T. Christen.

Deutsches Archiv für klinische Medizin, Leipsic

CIII, Nos. 1-2, pp. 1-198. Last indexed July 1, p. 53

59 *Clinical Picture of Pure "Indurated Endocarditis." (Flächenhafte Endo-Myokardschwiele.) C. Bäumler.
60 Apparatus for Study of Respiratory Interchanges. (Ein nach dem Regnault-Reiset'schen Prinzip für klinische Gaswech-
er modifizierter Benedict'scher
Rolly and J. Rosiewicz.
61
Convalescence. F. Rolly.
62
Fat Tissue. (Wassergehalt des
O. Bozenraad.
63 *Treatment of Obesity by Restriction to Milk. (Entfettung durch reine Milchkuren.) L. Jacob.
64 Comparative Pathology of Paroxysmal Hemoglobinuria. F. Meyer-Betz.
65 *Relations Between and Means to Prev
Liver and Pancreatic Fat Tissue
zwischen Leberdegenerationen und
krose an Tieren mit Eck'scher Fist
keit ihrer Verhütung.) F. Fischler.
66 *Determination and Proportion of Epinephrin in Human Blood. (Adrenalinnachweis und
menschlichen
Blutes.) E. Bröking ar
67 The Electric Reaction of
die Umkehr
des Zuckungsgesetzes bei der Entartungsreaktion.) D. H. Wiener.
68 Metabolism in Fever. (Zur Frage des Stoff- und Kraftwechsels im Fieber.) H. Senator and E. Grafe.

59. **Wall Endocarditis.**—Bäumler gives an analytic study of the four cases of this kind which he has encountered and compares them with similar ones on record. Among the various forms which strips of induration (*Schwielen*) in the endocardium and myocardium may assume, the form known as chronic wall endocarditis occurs almost exclusively in the left ventricle and it may develop without any trouble in the valves. Although the changes in the wall may be severe, yet the pulse may persist quite normal for years and the whole affection run a latent course. An acute commencement may be surmised but seldom can be proved. The principal manifestation of wall endocarditis is the dilatation of the left ventricle and development of a heart aneurysm, located mainly in the apex region. Extensive arteriosclerosis and chronic nephritis may be entirely lacking although they are otherwise so frequent with indurations in the heart. When compensation begins to fail, symptoms of cardiac insufficiency may be observed (dyspnea, cardiac asthma, stasis, relative mitral insufficiency, hydrops and albuminuria). But these symptoms can be made to disappear again and again under appropriate treatment. The deterioration of the left ventricle may be manifested—even without signs of cardiac insufficiency or after they have disappeared—by the attenuation of the first sound at the apex and by considerable weakening or total absence of the apex beat. Thrombi may develop in the spaces between the trabeculæ even without the development of an actual aneurysm. It sometimes happens also that thrombi may form in the right heart, owing to the insufficiency of the left ventricle or under the influence of some infection, and infarcts may develop from embolism in the lungs. According to the site and progress of the indurations the conducting system may become impaired. In a number of such cases the pulse became very slow but there was no lasting irregularity of the pulse-rate in Bäumler's cases and in a number of others on record of myocardium indurations. The prognosis becomes unfavorable when symptoms of cardiac insufficiency begin to manifest themselves. In quite a number of such cases in the literature sudden death occurred, sometimes without any preceding symptoms on the part of the heart.

63. **Treatment of Obesity by Restriction to Milk.**—Jacob reports eight additional cases of obesity in which the metabolic findings are tabulated during a course of exclusively milk diet at Moritz' medical clinic at Strasburg. These findings and the experiences with a large number of others all confirm the advantages of the strict milk diet in treatment of obesity in many cases. The simplicity of the method, its prompt efficacy while the patients have their appetite appeased and feel well, although the diet is so far below their normal needs—all these factors cooperate in the advantages of this method of reducing obesity. No by-effects or inconveniences have been observed with it. The deficit of protein does not seem to do any harm to the patients under the circumstances.

66. **Determination of Proportion of Epinephrin in the Blood.**—Bröking and Trendelenburg present evidence to show that epinephrin is present in normal blood in a proportion of about 1 to 2,500,000 and that this proportion is doubled and quadrupled in true exophthalmic goiter. In arteriosclerosis, in pregnant women and parturients the proportion persists normal while in chronic nephritis with arterial hypertension it is a little subnormal. They have devised a method for estimating the proportion in the blood which, they state, has proved constantly reliable. The principle of the new method of examination is to pass the blood through the vascular system of the frog kept functioning with Ringer's solution. The frog reacts with a vasoconstriction to epinephrin, and its presence is thus determined. The Ringer's solution is forced into the abdominal aorta of the frog whence it passes through the femoral arteries in the legs and out again through the femoral veins into the abdominal vein whence it passes into a glass cannula inserted in this vein, from which the fluid drips in a constant tempo. The drops automatically record themselves on a reviving drum. A curve of the drops is given showing how when epinephrin or blood containing epinephrin is added to the solution being forced into the abdominal aorta, vasoconstriction at once follows and it is plainly shown by the longer intervals between the drops as registered on the drum. This frog-flushing method has the advantage over other technics that it works physiologically; the epinephrin acts on the nerve terminals of the muscle cells in the vessels—its normal mode of action. The test is so sensitive, at least during the summer, that it reveals even minute proportions of epinephrin, while the same specimen of serum can be used over and over again even when it has commenced to putrefy. The vasoconstriction reaction seems to be specific for epinephrin; *none* of the numerous other substances tested give this vasoconstriction reaction in the same way and *none except in a* hundred or thousand-fold concentration, and the vasoconstriction is not so intense and does not subside so promptly.

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℞.	gm. or c.c.			
Extracti cascaræ sagradæ..........	4			ʒi
Magnesii sulphatis	4		or	ʒi
Tincturæ hyoscyami	2			ʒss
Aquam menthæ piperitæ.........ad	30			℥i

One to two tablespoonfuls at night as required.

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Spiritus chloroformi		60	or	m x
Infusi rhei	2			m xxx
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Aquam ....ad	30			℥i

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26 [illegible] y Passive Congestion. A. B. Fearnley.
27 Glycerin as an Antiphlogistic. L. Burges.
28 Magic and Medicine. D. McKenzie.

17. **Celiac Disease.**—Celiac disease is defined by Hutchison as a chronic wasting disease of childhood characterized by chronic diarrhea with large, pale and offensive stools, running a prolonged course with a great tendency to relapses, exhibiting often certain nervous complications, such as weakness of the legs and tetany, and ending either in death or in complete recovery, or in partial recovery with great impairment of growth and development (similar to or identical with the infantilism of Herter). The cause of the disease is obscure. Social surroundings seem to play little if any part in the etiology. Any acute attack of enteritis, whether from infection, poisoning, irritation of undigested food, or exposure to cold, seems able to serve as a starting point of the disease. The disease usually begins insidiously in the second or third year of life. The child is observed to be pale, listless and fretful, and to be losing flesh and strength. If inquiry is made into the state of the stools they will be found to be increased in number, usually about two or three in the twenty-four hours, and still more increased in bulk. They are usually of the consistence of porridge, pale or even quite white in color, and of an extremely offensive odor. Sometimes they contain streaks of visible mucus or blood, and undigested food particles can often be observed in them. The appetite is poor or capricious, and there is often considerable thirst. Physical examination reveals some degree of anemia; with wasting of the subcutaneous tissues and flabbiness of the muscles. The abdomen is distended and tympanitic. The temperature is often slightly elevated at night.

As the disease progresses certain nervous symptoms may become manifest. Chief of these is weakness of the lower extremities, which may be accompanied by loss of the knee-jerks. Attacks of tetany are not uncommon, and there may even be epileptiform convulsions. Edema, especially of the extremities, may occur without any evidence of renal disease, just as it does in other forms of chronic gastro-intestinal disorder in childhood. The mental condition is apt to be peculiar, there being often a high degree of precocity along with a tendency for the child to be unduly interested in his own symptoms, which is most unusual at this age. Sometimes, indeed, they are actual little hypochondriacs, and almost always they are spoilt.

If one makes a post-mortem examination of a fatal case of this disease, nothing at all is found by inspection except some atrophy of the intestinal wall. The condition most apt to simulate celiac disease is abdominal tuberculosis, and it is often extremely difficult to distinguish between them. In celiac disease, however, there are no enlarged glands to be felt and no thickened and rolled-up omentum, nor is there any ascites. A negative Pirquet's test is also of value in the diagnosis. The distinction is rendered still more difficult by reason of the fact that abdominal tuberculosis seems sometimes to supervene on the celiac disease after the latter has lasted some time. The course of the disease is an extremely chronic one, the duration extending to years with intervals of improvement, followed by the most disheartening relapses, which may take place in spite of every care. Complete and permanent recovery, however, may certainly occur. It took place in at least seven out of the sixteen cases which have been under Hutchison's observation, in some of which the disease had lasted for two or even three years. If a fatal result ensues it is usually the consequence of some intercurrent disease, such as bronchopneumonia. When the disease has lasted some time it leads to a retardation of growth, which may leave the child frail and stunted even when the intestinal symptoms have disappeared. In well-marked cases the interference with growth may amount to a condition of true infantilism, such as Herter described. Of this Hutchison has seen two pronounced examples, both of which were fatal. The way in which the arrest of development is brought about has already been discussed.

In the treatment of celiac disease a suitable diet is of the first importance. Owing to the impaired absorption of fats, the amount of fatty food must be greatly curtailed, and as starches are also badly borne these, too, must be avoided. and the diet should consist of raw or underdone meat, raw meat juice and skim-milk (preferably peptonized), gelatin in the form of jellies of different sorts and dextrinized foods. The raw meat and meat juice should form the basis of the dietary, and a child of 4 years may take as much as 6 ounces of the former and 10 of the latter daily. As improvement sets in, a little stale white bread and boiled rice may be added to the diet, as these contain starch in a form in which it is most easily borne. Under this regimen the stools usually decrease in number and amount and improve in color, while abdominal distention is lessened. In the general hygienic treatment great care should be taken to avoid chill. A warm binder should be worn over the abdomen, and the legs, which are very apt to be cold, should be warmly covered; it is sometimes even necessary to wrap them in cotton-wool and bandages. Special precautions should also be taken to avoid chill in bathing the child. Change of air to a bracing sea-side place is of great help, especially when the appetite is defective, and will often start an improvement when the case is "hanging fire." Medicinal treatment is of secondary importance, but opium is always useful. It may be given in doses of 1 minim of the tincture for every year of the child's age, along with bitters and carminatives. It tends greatly to lessen the offensiveness of the stools. If diarrhea be severe nitrate of silver is the most potent astringent. It may be given in doses of 1/6 grain with 1 or 2 drops of dilute nitric acid in a little glycerin and distilled water three times daily, and may be continued for weeks if necessary. Active preparations of pancreas are also of value, especially when the stools contain much unaltered fat.

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17 *Celiac Disease. R. Hutchison.
18 *Abdomino-Pelvic Pain in Women Without Physical Signs of Disease. V. Bonney.
19 Sanatoria, Tuberculosis Dispensaries and the Government Insurance Scheme. F. R. Walters.
20 *Puerperal Septic Thrombophlebitis of the Pelvic Veins. W. B. Bell.
21 Intussusception. A. J. Walton.
22 Sliding Hernia of Sigmoid. W. Rankin.
23 Pulsation in the Neck. W. Broadbent.
24 *Case of Esophagismus. T. M. Tibbetts.
25 Permeating Mastoid Meningitis. J. B. Pike.
26 Treatment of Fistula-in-Ano by Passive Congestion. A. B. Fearnley.
27 Glycerin as an Antiphlogistic. L. Burges.
28 Magic and Medicine. D. McKenzie.

17. **Celiac Disease.**—Celiac disease is defined by Hutchison as a chronic wasting disease of childhood characterized by chronic diarrhea with large, pale and offensive stools, running a prolonged course with a great tendency to relapses, exhibiting often certain nervous complications, such as weakness of the legs and tetany, and ending either in death or in complete recovery, or in partial recovery with great impairment of growth and development (similar to or identical with the infantilism of Herter). The cause of the disease is obscure. Social surroundings seem to play little if any part in the etiology. Any acute attack of enteritis, whether from infection, poisoning, irritation of undigested food, or exposure to cold, seems able to serve as a starting point of the disease. The disease usually begins insidiously in the second or third year of life. The child is observed to be pale, listless and fretful, and to be losing flesh and strength. If inquiry is made into the state of the stools they will be found to be increased in number, usually about two or three in the twenty-four hours, and still more increased in bulk. They are usually of the consistence of porridge, pale or even quite white in color, and of an extremely offensive odor. Sometimes they contain streaks of visible mucus or blood, and undigested food particles can often be observed in them. The appetite is poor or capricious, and there is often considerable thirst. Physical examination reveals some degree of anemia; with wasting of the subcutaneous tissues and flabbiness of the muscles. The abdomen is distended and tympanitic. The temperature is often slightly elevated at night.

As the disease progresses certain nervous symptoms may become manifest. Chief of these is weakness of the lower extremities, which may be accompanied by loss of the knee-jerks. Attacks of tetany are not uncommon, and there may even be epileptiform convulsions. Edema, especially of the extremities, may occur without any evidence of renal disease, just as it does in other forms of chronic gastro-intestinal disorder in childhood. The mental condition is apt to be peculiar, there being often a high degree of precocity along with a tendency for the child to be unduly interested in his own symptoms, which is most unusual at this age. Sometimes, indeed, they are actual little hypochondriacs, and almost always they are spoilt.

If one makes a post-mortem examination of a fatal case of this disease, nothing at all is found by inspection except some atrophy of the intestinal wall. The condition most apt to simulate celiac disease is abdominal tuberculosis, and it is often extremely difficult to distinguish between them. In celiac disease, however, there are no enlarged glands to be felt and no thickened and rolled-up omentum, nor is there any ascites. A negative Pirquet's test is also of value in the diagnosis. The distinction is rendered still more difficult by reason of the fact that abdominal tuberculosis seems sometimes to supervene on the celiac disease after the latter has lasted some time. The course of the disease is an extremely chronic one, the duration extending to years with intervals of improvement, followed by the most disheartening relapses, which may take place in spite of every care. Complete and permanent recovery, however, may certainly occur. It took place in at least seven out of the sixteen cases which have been under Hutchison's observation, in some of which the disease had lasted for two or even three years. If a fatal result ensues it is usually the consequence of some intercurrent disease, such as bronchopneumonia. When the disease has lasted some time it leads to a retardation of growth, which may leave the child frail and stunted even when the intestinal symptoms have disappeared. In well-marked cases the interference with growth may amount to a condition of true infantilism, such as Herter described. Of this Hutchison has seen two pronounced examples, both of which were fatal. The way in which the arrest of development is brought about has already been discussed.

In the treatment of celiac disease a suitable diet is of the first importance. Owing to the impaired absorption of fats, the amount of fatty food must be greatly curtailed, and as starches are also badly borne these, too, must be avoided, and the diet should consist of raw or underdone meat, raw meat juice and skim-milk (preferably peptonized), gelatin in the form of jellies of different sorts and dextrinized foods. The raw meat and meat juice should form the basis of the dietary, and a child of 4 years may take as much as 6 ounces of the former and 10 of the latter daily. As improvement sets in, a little stale white bread and boiled rice may be added to the diet, as these contain starch in a form in which it is most easily borne. Under this regimen the stools usually decrease in number and amount and improve in color, while abdominal distention is lessened. In the general hygienic treatment great care should be taken to avoid chill. A warm binder should be worn over the abdomen, and the legs, which are very apt to be cold, should be warmly covered; it is sometimes even necessary to wrap them in cotton-wool and bandages. Special precautions should also be taken to avoid chill in bathing the child. Change of air to a bracing sea-side place is of great help, especially when the appetite is defective, and will often start an improvement when the case is "hanging fire." Medicinal treatment is of secondary importance, but opium is always useful. It may be given in doses of 1 minim of the tincture for every year of the child's age, along with bitters and carminatives. It tends greatly to lessen the offensiveness of the stools. If diarrhea be severe nitrate of silver is the most potent astringent. It may be given in doses of 1/6 grain with 1 or 2 drops of dilute nitric acid in a little glycerin and distilled water three times daily, and may be continued for weeks if necessary. Active preparations of pancreas are also of value, especially when the stools contain much unaltered fat.

18. **Abdomino-Pelvic Pain in Women.**—In the treatment of cases of pelvic pain without physical signs Bonney says one should begin with purgatives, for many women go about with an habitually overloaded colon although the bowels are open every day. Ordinary "white mixture" three times a day is as good as anything. Later, when it is assured that the colon is well emptied, the following prescription is used instead:

℞.	gm. or c.c.			
Extracti cascaræ sagradæ	4			ʒi
Magnesii sulphatis	4		or	ʒi
Tincturæ hyoscyami	2			ʒss
Aquam menthæ piperitæ ... ad	30			℥i

One to two tablespoonfuls at night as required.

When flatulence is believed to play some part in the trouble he has found either of the two following very serviceable:

℞.	gm. or c.c.			
Potassii bicarbonatis		60		gr. x
Tincturæ zingiberis		60		m x
Spiritus chloroformi		60	or	m x
Infusi rhei	2			m xxx
Infusi gentianæ	30			℥i

Sig.: T. d. s.

and

℞.	gm. or c.c.			
Extracti aloes		060		gr. i
Essentiæ menthæ piperitæ		20		m iii
Tincturæ capsici		30		m v
Aquam ... ad	30			℥i

Sig.: T. d. s.

The following prescription Bonney finds excellent, especially if gastric symptoms are present as well:

℞.	gm. or c.c.			
Bismuthi salicylatis		60		gr. x
Sodii salicylatis		60		gr. x
Spiritus chloroformi	1		or	m xv
Aquam menthæ piperitæ ... ad	30			℥i

Three times a day.

In cases with *evident neurosis* sedative drugs are *indicated*, the bromids in particular. He looks on the following mixture as the most useful in cases of abdomino-pelvic pain without physical signs:

℞.	gm. or c.c.			
Potassii bromidi	1	30		gr. xx
Spiritus chloroformi		60	or	m x
Infusii cinchonæ	30			℥i

Sig.: T. d. s.

A great number of these patients are out of health generally quite apart from their local complaints. To such the administration of ferruginous tonics containing strychnin is always beneficial. Bonney finds that the best results are obtained with the milder preparations of iron such as the ammoniated citrate, because the digestion is usually too disordered to tolerate the more astringent forms. A favorite prescription of his is:

℞.	gm. or c. c.			
Ferri ammoniæ citratis		60		gr. x
Liquoris strychninæ		30		m v
Spiritus chloroformi		30	or	m v
Aqua ... ad	30			℥i

Sig.: T. d. s.

20. **Puerperal Septic Thrombo-Phlebitis.**—Bell is fully persuaded that when every patient with septic thrombo-phlebitis of the pelvic veins is operated on in the early stages the mortality will drop to, say, 5 per cent. as against the 60 per cent. of those treated by expectant methods.

24. **Esophagismus.**—Tibbetts' patient was 59 years old; complained of pains in the knees and shoulders; had an urticarial rash scattered over the body, especially abundant on the face, arms and chest, and also complained of a cough, which, as the chest signs were normal and the fauces rather injected, Tibbetts attributed to pharyngeal catarrh. The temperature was 100 F., and the urine was normal. The patient was kept in bed and a milk diet and salicylates were prescribed. For the next three days there was no material change. On the night of the third day the patient was in great distress. His aspect was that of the gravest anxiety. Every few seconds there were retching efforts almost amounting to convulsions, and from his mouth saliva poured profusely. By gestures and broken speeches he intimated that under the lower part of the sternum there was severe pain, and that he thought he should be suffocated. All attempts to swallow provoked fresh paroxysms. Fifteen years before he had had a similar, but much milder, attack, and from this fact, as well as from the absence of abnormal physical signs at the previous examination and its association with rash and pharyngitis, Tibbetts ventured a favorable prognosis. Poultices were applied to the chest, *steam inhalations administered, and a mixture of bismuth* and soda prescribed. The saliva and dysphagia continued for five or six hours, both subsiding gradually and simultaneously, and until then the patient had been unable to swallow either milk or medicine.

Next evening all the symptoms returned, and they continued to remit and recur at irregular intervals of from six to twelve hours' duration. So severe were the attacks that the eyelids became suffused and the eyes ecchymosed to the extent that one sees in bad cases of whooping cough, or in prolonged parturition, and in a single attack the saliva lost amounted to ½ pint or more. For the pain during the second and succeeding attacks Tibbetts *gave a hypodermic injection of morphin* (gr. ¼). This always relieved the symptoms, and sleep usually resulted, lasting for two or three hours. Except at first, the temperature was normal throughout, but the pulse became progressively feebler and more rapid. Such drugs as might be expected to influence the attacks were tried, but, excepting as influenced by the morphin, the attacks of pain, the salivation, and the dysphagia persisted unchecked for over a fortnight. The rash was practically constant throughout. At the end of a fortnight Tibbetts first tried a hypodermic injection of atropin (1/100 gr.), with a view to reducing the ptyalism which had been so marked a feature during each attack. *In a few minutes salivation and spasm abated, and* in an hour or so the patient was able to take liquid food easily. The injection was repeated in four hours' time and atropin in small doses (liq. atropin, mj.) was further administered orally at intervals of four hours. In less than twenty-four hours the rash had vanished, soon the patient's convalescence became assured, and a month later he resumed his ordinary occupation in which he has been able to continue.

Clinical Journal, London

August 2

29 Some Cases of Anterior Gastrojejunostomy. G. R. Turner.
30 Tetany and Dilatation of the Colon. F. Langmead.

Medical Press and Circular, London

August 9

31 Practical Treatment in Infantile Anemias. L. Tixier.
32 Percussion-Auscultation Diagnosis in Pleuritic Effusions. A. von Koranyi.
33 Asthma, Its Varieties and Treatment. G. A. Gibson.

Annales des Maladies des Org. Génito-Urinaires, Paris

June 1, XXIX, No. 11, pp. 961-1056

34 Kidney with Double Pelvis. (Rein à bassinet double et à urétère incomplètement dédoublé; pyélonéphrite suppurée de la moitié supérieure du rein et du bassinet correspondant.) E. Bruci.
35 Fixation of Kidney by Two Pedunculated Strips of Muscle. (La myo-néphropéxie.) A. Jiano (Bucharest).
36 Operative Cure of Double Firearm Wound of Urethra. Uzac.

June 15, No. 12, pp. 1057-1152

37 *Intravesical Operations for Tumors of the Bladder. J. Doré and L. Croizier.

37. **Endovesical Operations for Tumors.**—Doré and Mock review, with fifty-eight illustrations, the various technics and instruments used in removing tumors in the bladder without incising it, paying special attention to Marion's method. This is only the first installment of the article, which won the Civiale prize last year.

Lyon Chirurgical, Lyons

June, V, No. 6, pp. 545-692

38 *Appendicitis and Traumatism. L. Bérard and P. Vignard.
39 *Roentgenoscopy of Kidney Calculi. (Importance des données radiographiques dans les interventions pour lithiase rénale.) Arcelin.
40 *Torsion of Spermatic Cord. (Volvulus du testicle.) G. Cotte and L. Croizier.
41 Benign Goiter with Malignant Metastases. H. Alamartine and P. Bonnet.
42 Unilateral Hematuric Nephritis. Ronot.

38. **Appendicitis and Traumatism.**—Bérard and Vignard study the clinical and medicolegal aspects of appendicitis following or aggravated by traumatism, thus analyzing twenty-nine cases, the majority previously unpublished.

39. **Roentography with Kidney Calculi.**—Arcelin states that instantaneous exposures are liable to show up the stones much better than longer ones unless the kidney is completely

immobilized. He insists further that the roentgenographer should always be present at the operation so that he can identify the stones by *their shadows* and see that none is overlooked. Arcelin gives twenty-six different views of kidney stones to show the various sources of error.

40. **Volvulus of the Testicle.**—The patient was a young man and the *true nature of the trouble* was not recognized at first, treatment being applied on the diagnosis of acute orchitis. He had had mumps in youth and acute articular rheumatism but there was no history of venereal disease. The first sign of *trouble had been a* sudden intense pain, with syncope, progressive swelling and tenderness in the region, but there was nothing to indicate general infection. The condition at last compelled an operation which revealed that the spermatic cord had twisted entirely around inside the vaginalis. The torsion was readily reduced but the disturbance in the circulation had been of such long standing that conservative measures were no longer possible.

Presse Médicale, Paris

July 12, XIX, No. 55, pp. 577-584

43 *Mammary Gland and Corpus Luteum. P. Bouin and P. Ancel.

Revue de Chirurgie, Paris

July, XXXI, No. 7, pp. 1-212

44 *Woody Thyroiditis. (Maladie de Riedel.) X. Delore and H. Alamartine.
45 Excretion of Bile in Normal Conditions and After Cholecystectomy. X. Delore and G. Cotte.
46 *Postoperative Intoxication in Echinococcus Disease. (Intoxication hydatique post-opératoire.) F. Dévé. Commenced in No. 5.
47 Snapping Hip Joint. (La hanche à ressort.) L. Heully. Commenced in No. 5.

43. **Relations of the Corpus Luteum and the Mammary Gland.**—Brouin and Ancel sum up their studies of the relations of the corpus luteum and the mammary gland with the statement that the corpus luteum is a gland of internal secretion which governs the development of the mammary gland both during pregnancy and in its absence. In mammals which have no spontaneous ovulation there is normally no corpus luteum except during pregnancy, and the mammary gland develops only during that period. In women and in other mammals with spontaneous ovulation, on the other hand, alternate enlargement and diminution of the mammæ are observed which correspond with the intergestational development of corpora lutea. These mammary crises manifest themselves from the beginning of puberty to the end of sexual life, in the course of the menstrual period in woman and during the heat in animals.

The mammary gland is, therefore, an organ under the influence of the corpus luteum outside of pregnancy and during the first half of gestation. The corpus luteum stimulates growth of the organ, but cannot induce secretion. The latter function is probably due to a hormone introduced into the maternal blood during the latter part of pregnancy. The authors advance the hypothesis that this hormone is the product of a gland which they have discovered in the uterine muscle and to which they give the name "myometrial gland."

44. **Woody Thyroiditis.**—Delore and Alamartine report a case of transformation of the thyroid gland into a hard mass causing serious symptoms from compression. On suspicion of cancer half of the gland was removed but the microscope revealed the woody texture of the thyroid and adjacent tissues which Riedel has described as chronic ligneous strumitis. Their patient succumbed to a fulminating hemorrhage six hours after changing the dressing, four days after the operation. They review thirteen cases on record, including six from Riedel's experience. In only one of the cases was tuberculosis evident, but Leriche and Cotte recently reported a case in which the ligneous thyroiditis was of syphilitic origin and subsided under mercury and iodid. Silatschek and Barjon have each reported a case in which a cure was realized under a course of Roentgen-ray treatment, and this should be advocated in the forms without menacing functional disturbance. This affection should be suspected when the thyroid swells rapidly and becomes extremely hard, early interfering with respiration. The patients are usually between 30 and 40. As it is a purely inflammatory affection, medical measures or partial operations prove effectual, without recurrence. Tracheotomy is useless or difficult; the best operative technic is by resection of a wedge from the isthmus to liberate the trachea.

46. **Postoperative Intoxication in Echinococcus Disease.**—Dévé's attention was called to this subject by the sudden death nineteen hours after operation for a hydatid cyst in the liver in a child of 5½. The urine contained no formaldehyd and this, with the results of extensive experimental research, excluded the possibility of intoxication from the small amount of antiseptic injected. He has found on record twelve cases of mild intoxication after puncture of an echinococcus cyst and fifteen cases of severe symptoms of the kind, with twelve fatal cases and three in which the patients died soon after puncture of a hydatid cyst in the lung. He reviews also thirty-six cases of mild postoperative intoxication of the kind and twenty fatal cases. Study of this material and of the symptoms presented have convinced him that the whole trouble is a manifestation of anaphylaxis. The echinococcus poison may have dialyzed through the walls of the cyst, sensitizing the patient, or this result may have been accomplished by a preceding puncture. As he reviews the symptoms, the analogy with the symptoms of anaphylaxis in experiments on animals and in veterinary practice is striking. In prophylaxis every effort must be made to prevent the escape of the toxic fluid from the cyst into the surrounding tissues—even a minute quantity is liable to set up the anaphylaxis. It may prove possible to immunize the patient before operating, by some preventive anti-anaphylactic treatment, such as Besredka has realized in animals by repeated injection of small amounts of the serum. Certain biologists maintain that anaphylaxis is not strictly specific; if so, general anti-anaphylactic measures might prove effectual. Some have suggested general anesthesia in treatment of anaphylaxis, but Marion's case may be regarded as a failure of chloroform in this respect; possibly general anesthesia with ethyl chlorid or ether might answer better. This treatment seems to be justified in the nervous form of hydatid intoxication with convulsions, whose prognosis is almost inevitably fatal. Chloral might be indicated in such cases.

Semaine Médicale, Paris

July 19, XXXI, No. 29, pp. 337-348

48 Affinity of Poisons for the Nervous System. (La fixation des poisons sur le système nerveux.) G. Guillain and G. Laroche.

Beiträge zur klinischen Chirurgie, Tübingen

June, LXXIII, No. 2, pp. 261-568

49 *Acute Disease of the Pancreas. J. Borelius.
50 *Endothelioma of the Stomach. V. Bagger-Jörgensen.
51 *Typical Injuries in Various Sports. (Typische Sportverletzungen.) G. v. Saar.
52 Amniotic Membrane in Plastic Surgery. (Verwendung von Amnion als plastisches Interpositionsmaterial.) H. Schmerz.
53 Operative Cure of External Fistula into Esophagus. (Aeussere Oesophagusfistel am Halse.) v. Hacker.
54 Ethyl Chlorid Anesthesia. (Verwendung des Stadium analgeticum der Aethylchloridnarkose.) D. Kulenkrampff.
55 Spur-Formation at the Elbow. (Ueber Spornbildungen am Olecranon.) Krüger.
56 Outcome of Gastroenterostomies for Gastric Ulcer. P. A. Albrecht.

49. **Acute Disease of the Pancreas.**—Borelius reports a case of acute pancreatitis and eleven of hemorrhage in the pancreas; the trouble in the latter was probably not of infectious origin. In the first case the acute suppurative pancreatitis was evidently secondary to the gall-bladder. A gall-stone had become impacted at the papilla of Vater and the pancreatic duct was full of pus; but there were no signs of fat necrosis. No operation was attempted; the case dates from 1899. Only four recovered of the eleven patients with hemorrhage in the pancreas. The ages ranged from 29 to 74; three were obese and five very stout and one was quite thin. Cholelithiasis was evident in three and arteriosclerosis in two. There was a history of trauma in only one case, and a cyst was found in the pancreas in another. Six of the patients belonged to the well-to-do classes and the others were bank messengers or coachmen. Alcoholism was manifest in two cases and four other patients were "high livers." The trouble generally came on suddenly with violent pain, like a perforation peritonitis, but some of the patients said that they had previously had

similar milder attacks which "blew over." The discovery of gall-stones, however, possibly accounted for the previous disturbances. One patient said he had had occasional gall-stone colics but no evidences of cholelithiasis were found at necropsy. The sudden intense pain was sometimes accompanied by vomiting and retching but the most characteristic feature is the shock-like, systemic depression while the abdominal findings do not suggest peritonitis of such severity as to account for it. The heart and kidney functioning suffer intensely and death may occur within a few hours or at once.

50. **Gastric Endothelioma.**—Jørgensen reports a case of successful resection of half of the stomach on account of an endothelioma in a woman of 58. The first symptoms had been noted two or three months before, an occasional sensation of oppression in the epigastrium, but with no connection with the meals, no eructation, vomiting or hemorrhage, but for a year there had been a few days of diarrhea every two or four weeks, and she consulted a physician on account of the intestinal trouble. He found a palpable tumor and she gained several pounds at once after the operation and had been in perfect health during the thirteen months since. Jørgensen states that he has been able to find only four certain cases of gastric endothelioma on record. The description of the microscopic findings in Maylard's and Anderson's case (1910) does not justify the assumption of endothelioma according to his opinion, and neither do the four cases published by Fick, Cignozzi, Aldegarman and Meinel. The only ones he accepts are those of Jungmann, Hansemann, Ssobolew and Donath, one in a woman of 28. Although the tumors were small yet there was extensive metastasis in this and in Donath's case. In one of these and in Jørgensen's own case the tumor was a solitary round growth, in another it was multiple and in Donath's case a flat cake, more like an adenocarcinoma.

51. **Coasting and Snow-Shoe Accidents.**—Saar describes the mechanism and aspect of the various fractures liable in these sports, and says that they throw light on fractures in general, as he explains in detail.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 1, XLI, No. 19, pp. 657-688

57 Definition of Hysteria. Dubois.
58 Sphygmometry. (Die Schulthess'sche Sphygmometrie.) T. Christen.

Deutsches Archiv für klinische Medizin, Leipsic

CIII, Nos. 1-2, pp. 1-198. Last indexed July 1, p. 53

59 *Clinical Picture of Pure "Indurated Endocarditis." (Flächenhafte [illegible] Bäumler.
60 Apparat [illegible] Interchanges. (Ein nach dem [illegible] für klinische Gaswechseluntersuchungen gebauter modifizierter Benedict'scher Respirationsapparat.) F. Rolly and J. Rosiewicz.
61 Metabolism in Fever and in Convalescence. F. Rolly.
62 Water Content of Human Fat Tissue. (Wassergehalt des menschlichen Fettgewebes.) O. Bozenraad.
63 *Treatment of Obesity by Restriction to Milk. (Entfettung durch reine Milchkuren.) L. Jacob.
64 Comparative Pathology of Paroxysmal Hemoglobinuria. F. Meyer-Betz.
65 *Relations Between and Means to Prev[illegible] Liver and Pancreatic Fat Tissue [illegible] zwischen Leberdegenerationen und [illegible] krose an Tieren mit Eck'scher Fistel und über die Möglichkeit ihrer Verhütung.) F. Fischler.
66 *Determination and Proport[illegible] in Blood. (Adrenalinnachweis und [illegible] schlichen Blutes.) E. Bröking an[illegible]
67 The Electric Reaction of [illegible] Umkehr des Zuckungsgesetzes be[illegible] D. H. Wiener.
68 Metabolism in Fever. (Zur Frage des Stoff- und Kraftwechsels im Fieber.) H. Senator and E. Grafe.

59. **Wall Endocarditis.**—Bäumler gives an analytic study of the four cases of this kind which he has encountered and compares them with similar ones on record. Among the various forms which strips of induration (*Schwielen*) in the endocardium and myocardium may assume, the form known as chronic wall endocarditis occurs almost exclusively in the left ventricle and it may develop without any trouble in the valves. Although the changes in the wall may be severe, yet the pulse may persist quite normal for years and the whole affection run a latent course. An acute commencement may be surmised but seldom can be proved. The principal manifestation of wall endocarditis is the dilatation of the left ventricle and development of a heart aneurysm, located mainly in the apex region. Extensive arteriosclerosis and chronic nephritis may be entirely lacking although they are otherwise so frequent with indurations in the heart. When compensation begins to fail, symptoms of cardiac insufficiency may be observed (dyspnea, cardiac asthma, stasis, relative mitral insufficiency, hydrops and albuminuria). But these symptoms can be made to disappear again and again under appropriate treatment. The deterioration of the left ventricle may be manifested—even without signs of cardiac insufficiency or after they have disappeared—by the attenuation of the first sound at the apex and by considerable weakening or total absence of the apex beat. Thrombi may develop in the spaces between the trabeculæ even without the development of an actual aneurysm. It sometimes happens also that thrombi may form in the right heart, owing to the insufficiency of the left ventricle or under the influence of some infection, and infarcts may develop from embolism in the lungs. According to the site and progress of the indurations the conducting system may become impaired. In a number of such cases the pulse became very slow but there was no lasting irregularity of the pulse-rate in Bäumler's cases and in a number of others on record of myocardium indurations. The prognosis becomes unfavorable when symptoms of cardiac insufficiency begin to manifest themselves. In quite a number of such cases in the literature sudden death occurred, sometimes without any preceding symptoms on the part of the heart.

63. **Treatment of Obesity by Restriction to Milk.**—Jacob reports eight additional cases of obesity in which the metabolic findings are tabulated during a course of exclusively milk diet at Moritz' medical clinic at Strasburg. These findings and the experiences with a large number of others all confirm the advantages of the strict milk diet in treatment of obesity in many cases. The simplicity of the method, its prompt efficacy while the patients have their appetite appeased and feel well, although the diet is so far below their normal needs—all these factors cooperate in the advantages of this method of reducing obesity. No by-effects or inconveniences have been observed with it. The deficit of protein does not seem to do any harm to the patients under the circumstances.

66. **Determination of Proportion of Epinephrin in the Blood.**—Bröking and Trendelenburg present evidence to show that epinephrin is present in normal blood in a proportion of about 1 to 2,500,000 and that this proportion is doubled and quadrupled in true exophthalmic goiter. In arteriosclerosis, in pregnant women and parturients the proportion persists normal while in chronic nephritis with arterial hypertension it is a little subnormal. They have devised a method for estimating the proportion in the blood which, they state, has proved constantly reliable. The principle of the new method of examination is to pass the blood through the vascular system of the frog kept functioning with Ringer's solution. The frog reacts with a vasoconstriction to epinephrin, and its presence is thus determined. The Ringer's solution is forced into the abdominal aorta of the frog whence it passes through the femoral arteries in the legs and out again through the femoral veins into the abdominal vein whence it passes into a glass cannula inserted in this vein, from which the fluid drips in a constant tempo. The drops automatically record themselves on a reviving drum. A curve of the drops is given showing how when epinephrin or blood containing epinephrin is added to the solution being forced into the abdominal aorta, vasoconstriction at once follows and it is plainly shown by the longer intervals between the drops as registered on the drum. This frog-flushing method has the advantage over other technics that it works physiologically; the epinephrin acts on the nerve terminals of the muscle cells in the vessels—its normal mode of action. The test is so sensitive, at least during the summer, that it reveals even minute proportions of epinephrin, while the same specimen of serum can be used over and over again even when it has commenced to putrefy. The vasoconstriction reaction seems to be specific for epinephrin; none of the numerous other substances tested give this vasoconstriction reaction in the same way and none except in a hundred or thousand-fold concentration, and the vasoconstriction is not so intense and does not subside so promptly.

Therapie der Gegenwart, Berlin

July, LII, No. 7, pp. 289-336

69 Predisposition to Infectious Disease in Children. (Ueber kombinierte [illegible] Diathesen im Kindesalter.)
70 *Diagnosis and T[illegible] Ulcer. (Diagnose und Therapie des perforierten Magengeschwürs.) R. Mühsam.

70. **Perforated Gastric Ulcer.**—Mühsam remarks that there is comparatively little difficulty in diagnosing perforation of a gastric ulcer when there has been a history of stomach disturbances, nausea, oppression independent of the intake of food and acid eructations, even possibly years before. The aspect suggests peritoneal shock; a period of improvement may follow this before the paralysis of the intestines and peritonitis follow. He has found the blood-count of great assistance in confirming the diagnosis; the leukocytes generally run up to 12,000 or 30,000. The Arneth formula is also instructive. The more infectious the stomach content, the greater the danger of progressive peritonitis and the more the body summons its reserves to combat the infection, so that the qualitative changes in the blood-picture with perforated gastric ulcer are even more instructive than the quantitative. He cites some typical cases to illustrate this. In one case a man of 38 was sent to the hospital with the diagnosis of perforated gastric ulcer. He had had occasional mild stomach trouble previously and there was a history of syphilis twelve years before. The pulse was 37.92 C. (100 F.) and the leukocyte-count normal, as also the pupil reflex and the knee-jerk. On the basis of the normal leukocyte-count Mühsam differentiated the trouble as a tabetic gastric crisis and the course of the case confirmed this assumption. In another case a young man with articular rheumatism suddenly developed symptoms suggesting perforation of the stomach, with fever, high pulse and 16,000 leukocytes, but a prompt operation failed to disclose the slightest cause for the peritonitis and the young man soon recovered. In Mühsam's last twelve cases of operative treatment of gastric ulcer, only two of the patients succumbed, while nine died of a preceding series of twelve. His mortality has thus dropped from 75 to 16.6 per cent. He believes that the best means for combating the shock are to close the perforated ulcer and clean out the abdominal cavity, so he operates, if at all, as soon as the diagnosis is certain. As the perforation is so high, the abdominal cavity is more liable to be extensively contaminated than with perforation lower down.

Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart

LXVIII, No. 2, pp. 261-589. Last indexed June 3, p. 1696

71 Combined Malformations of Urinary and Genital Organs in Women. (Kombinierte Missbildungen des Harn- und Geschlechtsapparates beim Weibe.) M. Bolaffio.
72 Chorio-Epithelioma. (Zur Klinik und Histologie des Chorionepithelioms, nebst anatomischen Untersuchungen über Ovarialveränderungen.) F. Heimann.
73 Pubiotomy and Suprasymphyseal Cesarean Section. R. Roemer.
74 Bacteriology and Local Treatment of Febrile Abortions. M. Traugott.
75 The Ash of Ovaries. (Aschenbestandteile der Ovarien.) W. Benthin.
76 Ovarian Endothelioma. (Tubulöse Endothelialgeschwulst im Ovarium.) E. Kraus.
77 Histology of Metastatic Ovarian Carcinoma. H. Küster.
78 Radical Operation for Pubiotomy Hernia and Suture of the Bones. (Ueber die Radikaloperation der Hebosteotomiehernie und die Knochennaht der Diastase.) S. G. Luenberger.
79 Retro-Uterine Hematocele. (Fall von *Haematocele retro-uterina*, bedingt durch [illegible] tisch degenerierten Ova[illegible]
80 *Management of the Arms [illegible] Armverlagerungen bei Steissgeburten infolge von Ziehen, Drehen, Hebeln am Rumpfe und ihr "Redressement" durch entsprechende Gegenbewegungen.) H. Sellheim.
81 Gas Bacillus in Puerperal Infection. (Der E. Fraenkelsche Gasbazillus in seiner Bedeutung für die puerperale Infektion.) T. Heynemann.
82 Treatment of Injury of Intestine and Mesentery, Especially of the Sigmoid Flexure, in Course of Obstetric and Gynecologic Operations. I. I. Grekow.
83 New Technic for Cesarean Section. (Ueber Sectio caesarea abdominalis inferior.) F. Heimann.
84 *Hemostasis by Momburg's Belt. (Die Momburgsche Blutleere.) A. Steiger.

80. **Management of the Arms with Breech Presentation.**—Sellheim discusses the mechanism of normal breech presentation, the deviations from normal and the ways in which to restore normal conditions, especially by "rotation," illustrating the various points emphasized. The various maneuvers to alter the presentation may bring the arms into very unfavorable positions and systematic rotation, opposite to the direction of physiologic freedom of movement, is able, he says, to bring an arm thrown up over the head down toward the shoulder with other advantages. He does not hesitate to state that rotation deserves to rank high not only as a measure to prepare and aid and render delivery easier but sometimes as the only means to correct the very unfavorable position of the arms.

84. **Hemostasis by Momburg's Belt Constriction.**—Steiger has found records of 163 cases in which waist-line constriction has been used to arrest hemorrhage, including sixty-six obstetric cases. In three cases diarrhea followed, showing some irritation of the intestines, and in one case there was paralysis of the rectum for which, however, the constriction should not be held responsible. In one of 160 cases in the literature there was disturbance in micturition afterward. Complications on the part of the lungs were observed in three cases, and fatal arrest of respiration in one case; but the operator does not venture to decide whether the general anesthesia or the constriction should be incriminated for the fatality. In the sixty-six obstetric cases the method proved a brilliant success in fifty-two, while it failed constantly in nine cases, all reported by a single obstetrician. It is one of the few methods at our disposal for arresting hemorrhage, Steiger adds, in which there need be no danger of infecting the patient.

Wiener Medizinische Wochenschrift, Vienna

July 22, IX, No. 30, pp. 1910-1927

85 Congenital Cranial Defects. (Luckenschädel.) C. Hochsinger.
86 *Diphtheria Antitoxin in Erysipelas. O. Polak.
87 Apparatus (Patellar-Reflectometer) for Measuring Knee Reflex. J. Kitaj.
88 Analogy of Ergotism and Tetany. A. Fuchs.
89 Determination of Functional Activity of the Heart. R. Kleissel.

86. **Diphtheria Antitoxin in Erysipelas.**—Polak reports forty-three cases of erysipelas in which diphtheria antitoxin was used for therapeutic purposes. The result on the whole was a most satisfactory one although the author points out that good results are obtained with every treatment of erysipelas. The temperature falls within forty-eight hours after the injection of the serum and ends by crisis in a few hours. The general condition of the patient is very much improved; the local symptoms of the disease are rapidly lessened in severity and within a few days the patient is well. In complicated cases the further progress of the disease after the injection was not such a favorable one. The author believes that this treatment does much to prevent recurrences. The serum was also used in other streptococcic infections but the result was not such as to warrant further trial. Death occurred in five cases as a result of sepsis, pneumonia and meningitis.

Wiener klinische Wochenschrift, Vienna

July 27, XXIV, No. 30, pp. 1079-1098

90 *Nature of Rigor Mortis. O. v. Fürth and E. Lenk.
91 *Sputum Filtrate in Treatment of Pulmonary Tuberculosis. F. Passini and H. Wittgenstein.
92 *Blood-Alkali Bouillon—An Elective Culture Medium for the Cholera Vibrio. R. Kraus, Z. Zia and J. v. Subrzciky.
93 Symptomatology of Diseases of the Second Sacral Segment. Neuritis Due to Lead, Alcohol, Zinc and Ether. A. v. Sarbó,
94 *Sterilization of Rubber Gloves. E. Juvara and Jianu.

August 3, XXIV, No. 31, pp. 1115-1133

95 Chemistry of Tuberculin. T. Pfeiffer, H. Trunk and J. Leyacker.
96 *Action of Thyroid Extracts. L. Haskovec.
97 Acute Leukemia and Diabetes Insipidus in Status Thymicohypoplasticus. R. Lenk.
98 Trichopilar Muscle Crises in Tabes Dorsalis. A. Neumann.

90. **Rigor Mortis.**—The authors agree with other observers that rigor mortis is caused by a swelling of the muscle fibers due to the retention of acids in excess in the muscles. This swelling of the muscle elements leads to shortening of the muscle fibers and contraction of the muscles. Hitherto it has been quite generally believed that rigor mortis was caused by coagulation of albuminous substances in the muscles. Furthermore, when coagulation of these albuminous substances contained in the plasma does occur the muscles relax. The post mortem changes take place in the muscles and the continuous deposition of acids leads to this coagulation. The experiments performed by the authors which lead them to formulate these conclusions are reported in full.

91. **Treating Tuberculosis with Patient's Sputum.**—After having determined experimentally, in the case of animals, the harmlessness of injecting intramuscularly, intraperitoneally and intravenously the filtrate of tuberculosis sputum, the authors proceeded to make use of the procedure clinically. The sputum of the patient was filtered and toulol added to the filtrate. This mixture was injected subcutaneously, only 2 c.c. being given at the commencement of the treatment. A second injection was not given if a reaction followed the first until four days after the subsidence of the reaction. A large amount was injected the second time. The reaction following these injections is at first local in character, consisting in reddening of the skin and deep-seated swelling. The râles in the lungs are increased in intensity. The general reaction consists in slight elevation of the temperature, as occurs when tuberculin is injected. This elevation is first noted in from four to six hours after the injection and does not exceed 2 degrees. It subsides both suddenly and gradually in different cases. The patient complains of lassitude, headache and expectoration is increased. After these symptoms have subsided the patient feels better, eats better and coughs less. In several cases there was a distinct gain in weight after four injections, which had not previously been noted with other treatment. Only such patients as did not respond to tuberculin treatment were treated by sputum filtrate injections.

92. **Culture Medium for Differentiating Cholera Vibrios.**—For the purpose of differentiating the cholera vibrio from the colon bacillus, the authors made use of a blood-alkali bouillon which was really an adaptation of Deiudonne's blood-alkali agar. To 100 c.c. of neutral bouillon are added 25 c.c. of blood-alkali albumin. The mixture is exposed to a temperature of 50 C. for three hours and 37 C. for twenty-four hours. It is important not to use the mixture too soon because when this was done the results were invariably unsatisfactory. The cholera vibrio grows well on the medium in pure culture. The colon bacillus does not grow at all. Therefore, this medium is particularly suited for securing the cholera organism from the stool.

94. **Sterilizing Rubber Gloves.**—The authors subjected rubber gloves that had been infected with various organisms to sterilization in the autoclave at a temperature of 100 C. for thirty minutes, with the following results: five pairs of gloves infected with streptococci remained sterile. Five pairs infected with staphylococci also remained sterile. Of four pairs infected with the *B. pyocyaneus*, three remained sterile, the fourth pair showed a growth of pyocyaneus. In the case of six pairs infected with *B. subtilis*, sterilization proved ineffective. The same was true of five pairs infected with *B. mesentericus vulgatus*. It is apparent, then, that a thirty minute exposure to 100 C. in the autoclave without pressure is not sufficient to effect sterilization. In a second series of experiments, infected rubber gloves were exposed to a temperature of 120 C. with a pressure of 1 atmosphere for thirty minutes. All the gloves remained sterile.

96. **Action of Thyroid Extract.**—The action of thyroid extract was very thoroughly studied by the author and he reaches the conclusion that it has a characteristic effect on the heart muscle and cardiac nervous apparatus. In the case of the dog, this is manifested by lowered blood-pressure and increased frequency of pulse-beat. The former is the result of direct weakening of the heart action by vasodilation. The acceleration is believed to be due to the irritation of the accelerating nerve apparatus. Further, a small dose of alcohol disturbs the thyroid acceleration and depression. A large dose increases the depressor action of thyreoiodin. The author cautions against the indiscriminate use of thyroid extract; particularly in combinations with other substances.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 22, XXXII, No. 75, pp. 795-802

99 *Simplified Tuberculin Skin Test. (A proposito del mio metodo speciale di reazione tubercolinica.) P. Barabaschi.

July 2, XXXII, No. 79, pp. 827-842

100 Normal Urine. F. Bottazzi.
101 When Should Patients Get Up After a Laparotomy? (Sul soggiorno a letto degli operati all'addome.) A. Cosentino.

July 4, XXXII, No. 80, pp. 843-850

102 Diagnostic Value of Blood-Count in Helminthiasis with Symptoms Suggesting Meningitis. A. Mazzuoli.

July 6, No. 81, pp. 851-858

103 Gravity of Burns on Infants. (Intorno alle scottature nei bambini.) R. Sabelli.

July 9, No. 82, pp. 859-874

104 Medicolegal Questions in Industrial Lesions. (Lavoro generico oppure lavoro specifico nella valutazione medico-legale della lesioni da infortunio?) L. Borri.
105 Biologic Reactions in Pellagra. M. V. Carletti.

99. **Simplified Tuberculin Skin Test.**—Barabaschi rubs the region with alcohol until the skin is red. Then in the center of this area he spreads a thin layer of tuberculin without rubbing it in and lets it dry. In 114 cases in which he has applied this test there never was any general reaction, while the local reaction seemed to be a reliable index of an active tuberculous process even when the process was in its incipiency. He gives the details of eighty-nine cases to show the reliability of the test. His previous communication was summarized in THE JOURNAL, Sept. 10, 1910, page 977.

Policlinico, Rome

June, XVIII, Surgical Section No. 6, pp. 241-288

106 *Origin of Neoplasms. (Sui recenti contributi alla dottrina del neoplasmi.) G. Fichera. Commenced in No. 3.
107 Rat Cancer. (Sul potere oncolitico nei ratti.) S. Gussio.
108 Branchial Cysts. (Su talune cisti congenite del collo di origine branchiale e parabranchiale.) O. Cignozzi.
109 Experimental Research on Fixation of the Intestine. (Sulla enteropessia.) G. Razzaboni.

June, Medical Section No. 6, pp. 241-284

110 Chronic Hemolytic Jaundice. (Nuovo contributo allo studio degli itteri cronici emolitici.) E. Marchiafava and A. Nazari.
111 Functioning of the Liver in Tuberculosis in Children. (Studio della funzionalita epatica nella tuberculosi infantile.) A. Longo.

July 16, XVIII, No. 29, pp. 905-936

112 Staphylococcus Septicemia and Meningitic Syndrome from Pure Hyperemia. Recovery. A. Fedeli.

July, Medical Section No. 7, pp. 285-332

113 Percussion of the Spine in Diagnosis of Compression of the Trachea. (Nuovo segno fisico di compressione tracheale ricavato dalla percussione delle vertebre.) G. Stradiotti.
114 Pseudochylous Ascites. M. Barberio.
115 Blindness of Mental Origin. (Caso di cecita psichica.) G. Franceso. Commenced in No. 5.

106. **Origin of Neoplasms.**—Fichera here concludes the report of his research in this line which was mentioned in THE JOURNAL, June 10, 1911, page 1769. The communication issues from the surgical clinic at Rome in charge of Durante, and is the sixteenth Fichera has published on the origin of cancer as a result of premature senility of the cells, and treatment by what he calls histogenous chemotherapy; that is, with embryonal tissues as the opposite extreme. Besides the facts and experiences cited by Pearce Gould, there are others which he claims prove his statements that study of the efficiency of unaided Nature to effect a cure in certain cases of cancer is the only means to learn how to cure malignant disease. Several investigators have confirmed the destructive action on tumor cells of normal serum while the tumor cells do not seem to be influenced by even prolonged contact with the serum from persons with malignant disease. Gussio of Rome has found that fragments of rat sarcomas kept a day in blood-serum at body temperature or implanted in the peritoneal cavity of sound rats never take root and grow, while they do take root when the serum in which the scraps were kept had been taken from a cancer rat. Study of the variations in the tumor cell-destroying property of the serum may give interesting results, especially systematic investigation of the serum of roentgenologists who are so often victims of cancer. This property declines toward the end of a pregnancy, which confirms anew the principle that active development of fetal or neoplastic tissues is always accompanied by a lower cytolytic index in the host. Fichera cites Hochenegg's experiences with cancers developing at once after a pregnancy, and Fichera has encountered a case in which a cancer developed immediately after a pregnancy but was successfully removed. Seven years later another cancer developed under similar conditions after another pregnancy. He sums up his theory as the tumor-producing loss of balance and cell-producing chemotherapy,

equilibrio oncogeno e chematerapia istogena. The extract he uses is made from two to six months' fetuses from the maternity, triturated and placed in salt water until autolysis is *complete.*

Riforma Medica, Naples

July 10, XXVII, No. 28, pp. 757-784

116 Case of Umbilical Adenoma of Gastric Structure. G. Negroni.

Hospitalstidende, Copenhagen

May 31, LIV, No. 22, pp. 585-616

117 Comparative Mortality of Boys and Girls. (Dødsaarsagernes Forhold hos de to Køn indenfor Barnealderen.) H. P. T. Ørum.
118 Treatment of Scabies. (Om Fnatbehandling.) H. Petersen.
June 7, No. 23, pp. 617-648
119 *Technic for Operative Treatment of Peritonitis. L. Kraft.
June 14, No. 24, pp. 649-680
120 *Pathogenesis of Glaucoma. J. Bjerrum.

119. **Treatment of Peritonitis.**—Kraft is an advocate of suturing the peritoneum at once after having swabbed out all effusion or rinsed the cavity clean, and his series of parallel cases with and without drainage apparently *confirm* the superiority of this technic. It is not applicable, of course, with a gangrenous process or suppuration in the connective tissue below the peritoneum. But when it is possible to suture the peritoneum at once, normal peristalsis generally starts up again while a drain checks it. Active peristalsis promotes absorption of any peritoneal effusion and the bowels resume normal functioning, all of which is liable to be lacking when the peritoneum is drained.

120. **Glaucoma.**—Bjerrum presents evidence to sustain the assumption that glaucoma is not exclusively merely exaggerated intra-ocular pressure but that *an irritative process is involved besides.* This irritation seems to affect essentially the ciliary body. Excessive secretion follows, and this hypersecretion is the cause of excessive intra-ocular pressure. The primary irritation is probably of a toxic nature. He cites some typical cases to show this connection and the lesions encountered.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

PATHOLOGIC TECHNIC. A Practical Manual for Workers in Pathologic Histology and Bacteriology
Performance of Autopsies and for
tory Methods. By Frank Burr
Professor of Pathology, Harvard
James Homer Wright, A.M., M.D.,
ical Laboratory of the Massachuset
tion. Cloth. Price, $3. Pp. 507, with 162 illustrations. Philadelphia: W. B. Saunders Co., 1911.

INFECTION, IMMUNITY AND SERUM THERAPY IN RELATION TO THE INFECTIOUS DISEASES OF MAN. By H. T. Ricketts, M.D., Late *Assistant Professor* of Pathology, University of Chicago. Second Edition. Revised and Enlarged by the Author and by George F. Dick, M.D., *Instructor in Pathology*, University of Chicago, with Preface by Ludvig Hektoen, M.D. Cloth. Price, $2. Pp. 785. Chicago: American Medical Association, 1911.

MANUAL OF THE DISEASES OF THE EYE. For Students and General Practitioners. By Charles H. May, M.D., Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York. Seventh Edition. Cloth. Price, $2 net. Pp. 407, with 362 illustrations. *New York: William Wood & Co., 1911.*

VETER eatise on the Bacteria, Yeasts,
Molds a c *Animals.* By Robert Earle
Buchana. riology *in the Iowa State* Col-
lege of Arts, Division of Veterinary
Medicine 516, with 214 *illustrations.*
Philadelphia: W. B. Saunders, 1911.

SIXTIETH ANNUAL REPORT OF MERCY HOSPITAL, CHICAGO. Jan. 1, 1910. Covering the Period from Jan. 1 to Dec. 31, 1909. Conducted by the Sisters of Mercy, Under the Patronage of the Most Reverend Archbishop of Chicago. Prairie Avenue and Twenty-Sixth Street, Chicago. Paper. Pp. 95, with illustrations.

LAWS PASSED AT THE TWELFTH SESSION OF THE LEGISLATIVE ASSEMBLY OF THE STATE OF NORTH DAKOTA. Begun and Held at Bismarck, the Capital of Said State on Tuesday, the Third Day of January, A. D. 1911, and Concluding March Third, 1911. Cloth. Pp. 599. P. D. Norton, Secretary, Bismarck.

ANNUAL REPORT OF THE LYNN TUBERCULOSIS ASSOCIATION. A
Work that Has Been Done the Past Year
Cases at Lynn. March 1, 1910, to March
7, with illustrations.

SEVENTEENTH ANNUAL REPORT NEW ENGLAND BAPTIST HOSPITAL. With the President's Address, Reports of Officers and Statistics of the Hospital, *to which is Added the Report and List* of Officers of the Woman's Auxiliary. For the Year Ending Dec. 31, 1910. Paper. Pp. 30, with illustrations.

TWELFTH BIENNIAL REPORT OF ST. MARGARET'S HOSPITAL OF KANSAS CITY, KAN. Under the Charge of the Sisters of the Poor of Saint Francis. For the Years 1909 and 1910. Paper. Pp. 18.

BY-LAWS OF THE EPISCOPAL EYE, EAR AND THROAT HOSPITAL, Washington, D. C. Rules and Regulations. Copy of Charter of Jan. 18, 1897. Revised to May, 1908. Paper. Pp. 35.

FOURTEENTH ANNUAL REPORT OF THE EPISCOPAL EYE, EAR AND THROAT HOSPITAL, 1147 Fifteenth Street, Washington, D. C. For the Year 1910. Paper. Pp. 38, with illustrations.

HIERONYMUS FRACASTOR'S SYPHILIS from the *Original Latin. A* Translation in Prose of Fracastor's Immortal Poem. Cloth. Price, $2. Pp. 58. St. Louis: The Philmar Co., 1911.

A MEDICAL HISTORY OF THE STATE OF INDIANA. By G. W. H. Kemper, M.D. Cloth. Price, $2.50. Pp. 393, with illustrations. Chicago: American Medical Association, 1911.

SIXTY-FIRST ANNUAL REPORT OF THE CHICAGO ORPHAN ASYLUM, 5120 South Park Avenue. For the Year Ending Dec. 1, 1910. Incorporated Nov. 5, 1849. Paper. Pp. 40.

REPORT OF THE NORTH SHORE BABIES' HOSPITAL, SALEM, MASS. For the Year 1910. *Incorporated in 1905. Paper. Pp. 26, with* illustrations.

ANNUAL REPORT OF THE HEALTH DEPARTMENT OF THE CITY OF RICHMOND, VA. For the Year Ending Dec. 31, 1910. *Paper.* Pp. 149.

FIRST ANNUAL REPORT OF THE PROVIDENCE CITY HOSPITAL. For *the Year Ending Dec.* 31, 1910. Paper. Pp. 58.

New Patents

New Patents of Interest to Physicians

987,122.	Prescription file. Sterak G. Eghan, Ogden, Utah.
987,133.	*Obtaining lecithin, lecith-albumin and their by-products* out of raw material containing lecithin. Josef Habermann and R. Ehrenfeld, Brunn, Austria-Hungary.
987,375.	Making nitrogen-oxygen. Karl Kaiser, Wilmersdorf (near Berlin), Germany.
987,147.	Manufacture of carbonic oxid. Oscar Loiseau, Sclaigneaux, Belgium.
987,497.	Adjustable crutch. Fred E. Shadell and F. W. Cassidy, *Philadelphia.*
987,180.	Operating table for use of physicians and surgeons. Bernard D Thorner, New York.
987,658.	Electric heater and sterilizer. Johann G. Wallmann, *Oakland, Cal.*
987,204.	Inhaler. James Wilkie, Detroit.
987,276.	Machine for holding and dispensing soda-water straws. *Roy J.* Woodbury, Fulton County, Georgia.
986,178.	*Disinfecting* device. Theodor Druzbach, Hoboken, N. J.
988,082.	*Pill* machine. Frank M. Edwards, Portsmouth, Ohio.
987,865.	Metabolizer. John von der Kammer, Washington, D. C.
987,893.	*Artificial* limb. Henry L. Lawrence, New York.
988,120.	Dilator. John B. Loit, Anderson, Ind.
987,902.	Apparatus for producing ozone. Clifford D. Meeker, East Orange, N. J.
988,140.	Cutting and cauterizing device. Stephen J. Phillips, Glencoe West, South Australia, Australia.
987,910.	*Syringe.* Virginia W. Piper, Jamestown, N. Y.
988,031.	*Means for* introducing microbe cultures into bottles or other vessels. Pierre N. E. Remy, Paris, France.
988,036.	Eye-testing machine. Joseph Savoie, Central Falls, R. I.
987,749.	Clinical thermometer casing. Ralph F. Schneider, New York.
988,057.	*Toy and* lung tester. Wilhelm Zolper, Wilmington, Del.
988,701.	Perfume vending machine. Windred C. Finn, Bagnall, *Mich.*
988,939.	Surgical forceps. William H. Hudson, Montgomery, Ala.
988,352.	Inhaler. James D. Kerr, Greens Fork, Ind.
988,733.	*Formaldehyd* compound and making same. Wilhelm Osborne, Munich, Germany.
989,322.	Disinfecting composition. Oscar Bernheimer, Vienna, *Austria-Hungary.*
989,234.	*Surgical needle.* Cleveland G. Davis, Manistee, Mich.
989,137.	Drying apparatus for alimentary pastes. Giovanni Falchi, Biella, Italy.
989,141.	Pasteurizing apparatus. Frederick Gettelman, Milwaukee, Wis.
989,255.	*Surgical* instrument for cutting bandages. Otto Hasselmann, Wiesbaden, Germany.
989,012.	Outdoor sleeping apartment. Jennie Hoyt, Santa Paula, Cal.
989,526.	Artificial limb. William G. Kelly, Los Angeles, Cal.
989,019.	*Fumigator.* Lorenzo S. Livingston, Johnstown, Pa.
989,178.	Pill-making machine. Jesse C. Morgan, Cliffside Park, N. J.
989,189.	Making diabetic bread. August Pfeffer, Ulm, Germany.
989,337.	Apparatus for the manufacture of sulphuric acid. Otto *Proelss,* Kansas City, Mo.
989,463.	Crutch. Percy R. Wilde, Bath, England.
989,550.	Vaginal syringe. David L. Aber, Pittsburgh.
990,206.	Foot-*warming* attachment for electrothermal garments. Phyllis Charles, Portland, Ore.
990,116.	*Dehydrating* sodium sulphate crystals. John Davis, Laramie, Wyo.
989,839.	Ear irrigating device. Edmund P. Fowler, New York.
989,621.	Ice bag. Virginia C. Madigan, Columbus, Ohio.
990,066.	Tip for canes or crutches. Joseph H. Reading, Chicago.
989,875.	Invalid bed. Mary J. Reiff, Los Angeles, Cal.
989,651.	Manufacture of camphor. Jacob Schmitz and G. Stalmann, Dusseldorf, Germany.

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CLINICAL PHYSIOLOGY—AN OPPORTUNITY AND A DUTY

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NEW HAVEN, CONN.

The time has come for the formal recognition of clinical physiology as a distinct subject and a field of work of the first importance. More or less inchoate, more or less dimly recognized, it already exists. The function which I wish to assume toward it to-day is rather that of a priest at the christening than that of a midwife at the birth of this latest-born and most neglected of the family of the medical sciences. I wish to give it the distinction of a name.

In the progress of medicine during the past decade, no feature has been more striking than the rapidity with which the advances in theoretic knowledge made in the laboratories of pathology and bacteriology have been adapted to the uses of clinical medicine. Physiology, on the contrary, has to a large extent led a life of mere self-development—like a proud virgin, beautiful, cold and sterile. I know that I risk the vigorous dissent of other physiologists in making this criticism. But I believe that it is needed not only for the good of medicine but for the best interests of physiology itself.

Science uncontaminated by any contact with the practical business of the world has in recent years been extolled in many an eloquent period. Priceless in their practical results have been the investigations made by great thinkers with no practical end in view. Nevertheless, I hold that none of the sciences, certainly none of the medical sciences, can long remain wholly divorced from contact with practical aims and yet continue fertile.

The appeal of clinical physiology is both to physiologists and to clinicians. Physiologists now and in the next few years will find their richest and most fruitful problems in the field of clinical, rather than in that of purely abstract, physiology. In the golden age of physiology our great predecessors, Claude Bernard, Brown-Séquard, Marey, Ludwig, Fritsch and Hitzig, and many others worked at topics which were at that time essentially problems of clinical physiology. Where in the literature of their day will you find anything to compare in ineptitude with the ponderous discussion of the mathematics of a membrane manometer, on which some of their successors in Germany now spend their time? Had not Voit's life work on nutrition a broadly utilitarian object? Was not Bernard working at the problem of diabetes when he discovered glycogen? And at animal heat with the problem of fever in mind, when he found the vasomotor nerves? We have dug enough ore from the depths for the present. Let us devote ourselves for a time to extracting some of the gold which it contains.

To clinicians in nearly all departments, physiology offers to-day a brilliant opportunity. The progress of medicine in overcoming the secrets of disease is like the siege of a walled city. The clinicians are the infantry. The laboratory workers are the sappers and miners, the heavy siege artillery and the aviation corps. It is useless to hurl infantry against an unbroken wall. When, however, a mine has been sprung or a bastion battered down, then is the time when good generalship will lead the infantry to the assault through the breach and over the fallen ramparts. The great breaches of the past few years, into which the infantry have stormed, have been those opened by pathology and bacteriology. Meanwhile physiology has not been idle. It has burrowed under and overthrown many of the strongest towers. What is needed now is the massed assault of the infantry. In simple words, there is in physiology to-day a great mass of knowledge and a wide range of methods readily adaptable to clinical uses and needs. If clinicians will acquaint themselves with this knowledge, and adopt, adapt and employ these methods, they will be able to march rapidly over obstacles now insurmountable.

Such a development of clinical physiology might well be the greatest event in the progress of medicine during the second decade of the twentieth century.

What the entire volume of clinical physiology should be in the future may most easily be shown by instancing such of its chapters as might be written even now. Such a chapter might be written about the clinical use of the sphygmomanometer, the significance of its measurements and the conceptions of circulatory functions which center in it. How valuable are these conceptions and measurements I need not emphasize before this audience! That which should be emphasized is the fact that physiologists began measuring blood-pressure in millimeters of mercury more than half a century ago; yet the clinical modification and utilization of the method is a matter of yesterday—perhaps I should rather say of to-day, or even to-morrow. Thus, by this example, it takes at least fifty years for a physiologic conception or method to find its way from the laboratory to the clinic. Many pathologic and bacteriologic methods complete the arduous journey in as many weeks.

It is only five years since I had the pleasure of attending a meeting of the British Medical Association at Toronto and of sitting in a great hall packed with clinicians, listening with open-mouthed interest to the wonderful news that the blood was under pressure in its vessels, that the pressure could easily be measured and

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* Chairman's Address before the Section on Pathology and Physiology, at the Sixty-Second Annual Meeting of the American Medical Association, held at Los Angeles, June, 1911.

that such measurements have a meaning. On this occasion a number of eminent authorities who had crossed the broad Atlantic, or traveled thousands of miles from the four quarters of Canada and the United States for this special purpose, thought it necessary to explain in words of one syllable how the heart pushes the blood through the arteries and how this pressure is measured by the raising of mercury in a tube of glass. Then arose one most eminent in authority who informed the audience in effect that using an instrument for such a purpose was all "bosh." For himself, he believed that the "tactus eruditus of the trained finger" told any competent physician or surgeon all that he needed to know!

I suppose that no one, however eminent, would dare make such an assertion to-day. We do not now have to explain what arterial pressure is. But turn for a moment from the clinical aspects of the circulation to those of respiration. Here is a function of the first importance; a function subject to manifold alterations in health and disease; easy to observe, relatively easy to measure; a function about which physiologists have locked in their laboratories a considerable amount of information. Yet look through all the hundreds of well-appointed hospitals between Los Angeles and Eastport in the state of Maine; look in all the elaborately equipped consulting rooms of all our eminent internists. Where will you find an instrument for anything more than the crudest observation and measurement of respiration? Nowhere, I believe! What do the clinicians of to-day—even the most learned—know of respiration? Next to nothing! And this little is mostly wrong.[1] If a patient pants for breath do not most of them order as many gallons of oxygen as his purse will allow to be blown off somewhere in the neighborhood? As well might they burn so many Chinese prayers printed on rice paper—except that it is profitable for the concern that supplies the oxygen. If, on the contrary, a patient's respiration is failing, oxygen may likewise be ordered; and a grim humor attaches to the fact that this oxygen, in order to comply with the requirements of the Pharmacopeia, has been carefully freed from every trace of carbon dioxid—the one substance which might act for a time to restore the respiratory center to its normal activity. Great is the medicine of to-day in its knowledge of man's parasites; great in its acquaintance with the appearance of his tissues after he is dead. But do we not lack an adequate comprehension of the functions of man himself, and a control of the working of the machine while, although somewhat damaged, it is still a "going concern?"

I am convinced that the now unutilized opportunities which modern physiology offers are so promising that any capable and well-trained physician or surgeon, if he will but take the trouble to acquaint himself with some one line of the subject—say respiration for example—and to work at it in connection with his practice, may make a notable contribution to practical medicine. What can be done in many lines may best be shown by instancing what has been done in a few. Consider the work of James Mackenzie, at first only a country doctor. With no better opportunities for work than a rural practice afforded he took the sphygmograph and applied it clinically. To-day his work on the application of graphic methods to the clinical study of diseases of the circulation stands as one of the finest chapters of clinical physiology.

The electrocardiogram is affording a similar opportunity for advancement in the clinical physiology of the heart, an opportunity which fortunately a number of internists in this country have seen and utilized. The new work of Hirschfelder of the Johns Hopkins School on diseases of the heart and aorta is throughout essentially a treatise in clinical physiology.

On the side of surgery one of the most brilliant events of the past few years has been the development of methods allowing a ready access to the interior of the thorax. The work of Sauerbruch and Brauer, and of the other surgeons who have worked in this field, is a striking example of the profitableness of clinical physiology. So also is the work of Crile on surgical shock, and that of Cushing on the functions of the pituitary gland, normal and abnormal.

In a similar manner I might illustrate the sort of work which I believe that physiologists ought to do by examples of what some have done. Here may be mentioned the work of Erlanger on heart-block; of Cannon, not only on the normal movements of the stomach and intestines, but also on those after the performance of gastro-enterostomy, and of Meltzer in developing intratracheal insufflation from a method of mere laboratory interest into one which may prove of the greatest clinical utility.

All of these illustrations are drawn from the physical side of physiology. The physiologic chemists of to-day would easily afford ten times as many examples. In fact, the greater part of the flood of work which at present is almost swamping the journals of physiologic chemistry is essentially of this, to my mind, the right sort. It is directed to the solution, not of mere esoteric problems, but of topics of broad and pressing medical and human interest—diabetes, metabolism in disease as well as in health, and to those problems of nutrition which are of such tremendous import for the welfare of mankind.

It was a fortunate day for medicine when Emil Fischer turned his attention to the proteins. Almost at a stroke he lifted the pure and esoteric problems of biochemistry to a plane on which the great majority of chemical physiologists are incapable of working. Only a specially trained organic chemist can do this work. So our chemically-minded brethren, greatly to the profit of medicine and of their own scientific fortunes, have been forced to devote themselves to the cultivation of fields which will bear and are richly bearing fruit for to-day and to-morrow, rather than to that deeper ploughing and sowing from which the slow-growing harvest will indeed be of priceless value, but chiefly for generations yet unborn.

For the development of clinical physiology in America three conditions seem to be of special importance:

1. Internists and surgeons, and especially the professors of medicine and surgery in our medical schools, must be more interested, better trained and more widely read in physiology. It were better if they read less in the clinical and more in the scientific journals; better if they talked and practiced less, and investigated a great deal more.

2. Physiologists must assume the duty of teaching not only normal but also abnormal physiology. Both, in my opinion, should be taught in the second year of the medical course and as successive parts of one and the

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[1] So far as I am aware, the first paper ever written by an American clinician, based on a study of respiration in disease by precise physiologic methods, was presented as the oration in medicine at this meeting of the American Medical Association by Dr. C. F. Hoover.

same subject. We cannot leave this for the pathologists to do. A man trained by autopsy and microscope is inevitably a morphologist. Just in proportion as he is fitted to deal with morphologic processes, he is unfitted to handle and expound functions of a physical nature—unless, of course, he happens to be an all-around genius.

3. Finally, I hold that in the future students who are being trained to be physiologists, whether in the field of physical and nervous or of chemical physiology, ought to have the M.D. degree. In our better medical schools the improvement of the curriculum in the last few years has been so marked that even the clinical courses have, to a great extent, lost that deadening influence on the students' ability to think scientifically which they formerly exerted. Furthermore, the elasticity introduced into the curriculum by the elective system, as practiced at Harvard and at Johns Hopkins, affords opportunities for the student who plans to be a physiologist to take little of what he will not need and to devote himself largely to his special interests.

I do not regard the Ph.D. degree alone as insuring a sufficiently broad training for a physiologist, either in the chemical or physical line. It is true that many American physiologists are merely doctors of philosophy. I am such myself. But I know, by the sad experience of years wasted in filling in the gaps in an utterly insufficient technical training, how great a handicap this is. Any doctors of philosophy who profess a different view I am compelled to regard as like the fox in the fable who lost his tail. If they, like this cunning animal, claim that a condition of taillessness is an advantage, I would like to warn all the young physiologic foxes to beware. Grow a good bushy tail in the form of an M.D. after your name, and let no tailless old fox beguile you out of growing it.

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SPINAL FRACTURES

OPINIONS BASED ON OBSERVATIONS OF SIXTEEN OPERATIONS *

A. F. JONAS, M.D.
OMAHA

There are no graver injuries than fracture of the bony structures of the spinal column. No class of fracture presents more difficult problems for solution. In none is there greater uncertainty as to diagnosis, management and ultimate outcome.

Surgeons who have had a considerable experience with spinal fracture have not become wildly enthusiastic as regards treatment and prognosis. If a surgeon has operated frequently, he has learned that a fracture dislocation usually causes a partial or complete division of the cord, and that complete recovery is extremely rare. He may count a considerable number of operative recoveries and some patients who have regained a partial functional activity, but complete restoration of function is uncommon.

However, when we carefully review our cases and consider the extensive destruction of the cord in a large percentage of instances and the long periods of delay that are only too common before active interference is resorted to, and again when we recall the unusual handling of many cases of spinal fracture, while being transported home or to the hospital, often increasing the bony displacement and cord compression and augmenting the laceration of meninges and spinal vessels, it is not strange that our results are no better.

I desire to record briefly my personal experiences with injuries to the spinal column. During a period of thirty years there have come under my observation forty-two cases of spinal injury that involved the bony structures of the spinal column, as shown by spinal deformity and complete motor and sensory paralysis of all the structures below the seat of fracture. In this number are included all that I have examined as my own cases and those that I have seen in consultation with other practitioners. Of this number only sixteen have come to operation. In the light of our modern conceptions of the surgical treatment of compression fractures, too many of these have been allowed to be unoperated on. And yet those of us who have witnessed much of accident surgery and particularly of spinal fractures, and have learned to know of the severe crushing of the cord and its membranes in a large percentage of cases, understand too well the hopelessness of the greater number of them. Not only are surgeons not enthusiastic about spinal operations, but the laity is loath to give its consent, owing to the well-known uncertain prognosis. You and I have been compelled to admit that the final outcome is uncertain when we advise a laminectomy as the only chance. We cannot even give an approximate estimate as to the prospects. We have no means of knowing how extensive is the traumatism to the cord and its envelopes. We are fairly certain, in a given case of deforming fracture with paralysis, that the cord is certainly damaged and still we cannot ascertain, with certainty, if it is compressed or lacerated or completely divided. It may be fair to assume that the cord is completely divided where there is a pronounced angular deformity and complete motor and sensory paralysis, and yet moderate cord injury has been found with extreme posterior angular deformity. We may say that the spinal deformity does not always indicate the extent of the cord injury. Consequently we have to deal with an uncertainty. I have met with cases in which there was no spinal deformity and yet there existed complete paraplegia and a laminectomy demonstrated actual cord destruction. And again I have examined one case of marked posterior lumbar deformity causing complete paraplegia immediately after the accident with entire relief of paralysis after traction had been made on head and pelvis and a partial restoration of the deformity by digital pressure. The patient was able to walk about in spite of marked angular deformity. Between these two extremes we have every variety of clinical picture presenting a great array of traumatisms that are often at variance with the physical findings. The traumatisms may amount to a simple transient concussion or may consist of a complete division of the cord. Unfortunately the vast majority of fracture dislocations have produced partial or complete cord division. [illegible] ny operative work complete division occurred in [illegible] reater number of cases and in none of them, [illegible] e exception of an occasional temporary imp[illegible] id I see a patient completely recover. W[illegible] ed that recovery of these cases was absol[illegible] Practical experience and experimen[illegible] ed to indicate that the spinal cord n[illegible] ntil the publication of Hart and Stewart's case[1] of severed cord in the dorsal region operated on by them in 1901. We had been taught by Ludwig, Wiesman, Ballance and others that

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* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

[1] Tr. Am. Surg. Assn., 1902, xx.

ganglionic non-neurilemmatous nerve cells once destroyed never regenerated, that a complete division of the cord, at any point between the atlas and twelfth dorsal vertebra, was hopeless, because in this part of the cord, the cell elements were non-neurilemmatous. We had learned that regeneration was possible only in the cauda equina and in the spinal nerve roots external to the cord which meant that, when improvement did take place, it was due to the nerve anastomoses between the spinal segments above and below the injury. All experimental research seemed to coincide with clinical observations that a divided spinal cord never underwent complete anatomic and physiologic restoration, that we were quite unprepared for the report of Hart and Stewart's case. They had done a myelorrhaphy in a cord divided by a bullet and, while the outcome was not a complete restoration of function, the result seemed to indicate, at least, a partial regeneration of the cord and we began to have some doubts as to our well-fixed convictions regarding regeneration.

This observation was sufficient, however, to awaken the hope that there was some error in the experimental findings of the workers in this field. More recently Estes has reported two cases of resection of a completely divided cord where a myelorrhaphy had been done, with marked improvement in both cases, so that spinal fractures are apparently not as hopeless as past experience seems to indicate. Later observations of these reported cases show that recovery was not complete in any of them; while improvement was marked and gratifying to a certain point, motion and sensation did not become normal and we are obliged to admit that, after all, these cases have not changed our scientific knowledge and that the non-neurilemmatous elements of the cord do not regenerate and the improvement must be attributed to the extra-spinal nerve anastomoses.

The important problem consists in determining what to do in a given case. We have to do with a part of the human anatomy that seems to have been provided in its construction, with every safeguard to prevent injury; a column made up of short, strong, bony segments held together by tremendously strong ligamentous and muscular bands: a flexibility secured by three anteroposterior curves, a series of twenty-four ribs insuring a wonderful lateral support. It is clear that a tremendous force, either direct or indirect, is necessary to effect a fracture.

We have learned that direct violence often produces a simple fracture, which means fractures of the transverse processes, the laminæ, pedicles and spinous processes and sometimes the bodies. These fractures sometimes cause comparatively trivial disturbances, which occasionally consist only of an irritation of spinal nerve roots and at other times extensive cord destruction with complete paralysis of motion and sensation due to pressure of bony fragments or hematomas and later to transverse myelitis. The clinical manifestations are so variable that the diagnosis is often only a matter of speculation.

Indirect violence producing forcible bending forward, is caused often by the falling of weights on the back while working in a stooping position (like a coal miner, where masses of coal fall from the ceiling of a mine), producing comminuted and complicated fractures. They are attended by extensive laceration of muscles, ligaments, cord envelopes, spinal nerves, and the cord itself and considerable hemorrhage. The vertebral bodies may be crushed, the pedicles fractured, the bone fragments are usually displaced and there exists the inevitable cord lesion usually complete division and the nature of the injury appears quite clear. But let us for a moment consider the average spinal injury.

We are presented with a recent case. We are informed as to the nature of the accident, direct or indirect violence. There is immediate and complete motor and sensory paralysis below the point of injury. There may or may not be a posterior angular deformity, or one or more movable spinous processes, the local pain may be intense or mild or absent. There may be severe lancinating pain in the course of the spinal nerves, springing from the seat of injury or immediately above it. Tendon reflexes may be exaggerated, enfeebled or absent. Now we ask ourselves what structures are damaged? We may be certain that there is cord compression, but can we be certain whether the pressure is due to bone fragments or to hematorrhachis or hematomyelia? If we see the case at a later period, a few days or a few weeks or months later with the same train of symptoms to which have been added the following, the bladder and anal sphincters are paralytic if the lesion is high, there may be priapism; pain at seat of injury may have increased and may have become lancinating and peripheral; trophic changes are unmistakable and vasomotor disturbances are marked. There are secretory changes in the skin, ankle-clonus and planter reflexes uncertain. Babinski's sign, although absent in early cases, may have developed. Now, are we certain of the exact nature of the injury? It is true that we are fairly certain in the presence of the clinical picture containing the greater number of the above symptoms, that we have a grave injury to the cord. But in the present light of our knowledge, we cannot state with certainty whether we have compression or a partial or complete division of the cord.

In dealing with spinal fractures, especially those that we have operated on, it was possible in the majority to state that the cord was injured, but it was not possible to know to what extent before the spinal canal was opened. In some, where a destruction of the cord seemed certain, the operation disclosed a large clot pressing on the cord and in others where one or two spines were depressed, a laminectomy revealed pressure, but no destruction, and again in the presence of moderate deformity a single sharp fragment had caused extensive meningeal and cord laceration. In one case with a marked posterior angular deformity involving the sixth, seventh and eighth dorsal vertebræ and complete and immediate motor and sensory paralysis, a complete destruction of the cord, at point of injury, seemed certain. It was found, on opening the spinal canal, that the cord was compressed but not destroyed. No visible lesion could be made out. A laminectomy was done and a complete restoration of motion and sensation ensued. Now in the presence of this wide discrepancy between clinical and anatomic findings, what are we to do? I have wavered between the extremes of non-interference on the one hand and operative intervention in all cases of spinal injury whose chief clinical manifestation was paraplegia. It has been difficult to carry out the latter plan in practice, partly on account of the deeply rooted prejudice of the laity against operations, owing to the well-known high mortality in spinal fracture, and the uncertainty of the outcome after surgical interference. Then the surgeon himself had to confess that a spinal injury with paralysis and no deformity does sometimes recover. In cases where there may have been a concussion with no tissue destruction, recovery may occur in a few hours or days. There may have been an extra dural clot which may have become absorbed, and restoration of function may be complete in a few days or weeks.

There seems to exist much uncertainty with individual operators as to what is best to do. Very few or no surgeons can count their spinal operations by the hundred, and to lay down positive working rules for our guidance may be hazardous and yet we have several unmistakable indications that we cannot ignore. When carefully studying only a part of the published cases, we find that all operators must agree as to the uncertainty of the anatomic findings in most cases, especially where undoubted deformity exists. There may be an extensive osseous lesion with little or no cord destruction, or an apparently limited bony lesion and much cord destruction. We all agree that the osseous lesion is no guide to the extent of the intraspinal condition.

Now in view of this uncertainty there appears only one thing to do and that is to open the spinal canal in all cases of spinal injury with deformity and paralysis. Do an exploratory laminectomy. Accurate asepsis and exact surgical technic have made operative intervention a safe procedure. It should be done immediately and if possible as near the place of accident as can be. Much damage can be done while the patient is being transported. Rough handling or long continued jolting over a rough road can increase the vertebral displacement, augmenting a pressure or a laceration, increasing the damage and thereby changing a curable to an incurable condition. I have known of at least one case in which this occurred, as will be noted in the following record of cases with operations. Delay is usually dangerous. While there are recorded some cases in which later operation was done for compression of the cord, they are the exception. Many patients have been operated on after lapse of weeks and months, who were not benefited on account of degeneration of the cord though the initial lesion consisted solely of compression. Therefore it would seem that the best practice is to open the spinal canal as soon as the diagnosis is made; delay in actual cord injuries is not advisable on account of the liability of early degeneration of cord elements.

I have attempted to arrange my cases under the following heads:

1. Contusion of the cord due to a momentary pressure of a fracture of one or two laminæ, where the spinal arch springs back into place almost instantly causing paralysis but leaving only moderate external deformity—in some instances a movable spinus process.
2. Compression in the presence of non-reforming fracture due to hemorrhage in the spinal canal (hematorrhachis).
3. Compression due to hemorrhage both on and in the cord (hemorrhachis, hematomyelia).
4. Compression without destruction of cord elements.
5. Partial destruction of the cord at the seat of injury.
6. Total destruction of the cord at the seat of injury.

The following cases are not arranged in the order in which they came under observation but according to their pathologic findings. Only those that came to operation appear. No cases of concussion or shock of the spinal cord are here recorded; only those are discussed in which the clinical findings indicated a fracture of the osseous structures.

1. Contusion of the cord due to a momentary pressure of a fracture of one or two laminæ, where the spinal arch springs back into place almost instantly, causing paralysis but leaving only little external deformity, in some instances a movable spinous process.

Under this head we will find two cases.

Case 1.—A. B., aged 45, laborer, while occupied in the construction of a building, fell from the second to the first floor striking on his back. He was picked up unconscious and carried to his home a few blocks away. He regained consciousness in a few hours, but found himself paraplegic from the nipples down.

Examination.—I saw him ten days later at the M. E. Hospital. There was found complete abolition of motion and sensation from the nipple line downward. There was no control of the sphincters. The sixth dorsal spine was found to be freely movable.

Operation.—An operation was advised and quickly agreed to. A trap door skin incision and blunt separation of the muscular and ligamentous structures exposed the spines and laminæ of the fifth, sixth and seventh dorsal vertebræ. The sixth spine was loose and it was removed. The laminæ of all the vertebræ seemed firm and not depressed. On close examination, however, the left lamina of the sixth vertebra showed a fissure and the bone was slightly depressed. The lamina was removed with a chisel. The meninges appeared thickened with a hemorrhagic infiltrate extending slightly into the cord. The parts were gently flooded with normal salt solution, clearing away much of the infiltrate. It appeared that the lamina on one side was fractured and had been crowded down on the cord, then instantly sprung back into its normal position. There was very little tendency for the incised meningeal margins to separate and no suture was used. The wound was closed.

Result.—There was gradual return of sensation of motion in the course of two months, so that he was able to leave the hospital, walking well, with crutches.

Case 2.—C. A., laborer, aged 40, fell from a wagon, striking on his back. There was temporary mental confusion but no unconsciousness. He was unable to move. When assistance arrived, it was found that he could move his arms fairly well but his lower extremities had lost all movement and sensation.

Examination.—I saw him at his home, four weeks after his injury. All sensation and motion absent below the ensiform appendix, both sphincters incompetent. A bed sore on the sacrum. The fourth and fifth dorsal spines were movable and manipulation was painful.

Operation.—(At home.) The spinal canal was opened as in the preceding case. The spines together with the lamina were easily removed after dissections of the soft parts. It was found that the laminæ were not compressing the cord, but evidentally had momentarily done so. There was a hemorrhagic infiltrate in the meninges and slightly in the cord and several small clots between meninges and laminæ. Flooding with normal salt solution and careful swabbing, cleared the field fairly well. Several sharp bone spiculæ were clipped away. Meninges not sutured. The wound was closed.

Result.—There was gradual return of sensation and motion. In a year, with the aid of a cane, he was walking.

The foregoing two patients might possibly have recovered without operation, but it was impossible to estimate the extent of the lesion before the spinal canal was opened.

2. Compression in the presence of non-deforming fracture due to hemorrhage in the spinal canal. (Hematorrhachis.)

There was only one case of this nature.

Case 3.—F. D., farmer, aged 35, fell from a hay-loft a distance of about ten feet, falling on his back. There was complete motor paralysis when he was found an hour later. Sensation was diminished but not absent. It disappeared, however, in 24 hours.

Examination.—I saw him ten days later at his home where all preparation for an operation had been made. The patient stated that he did not become unconscious at the time of the accident. And he thought, but was not absolutely certain, that he could move his legs for a few moments, but that he did not try again on account of the great pain in the back. All sensation and motion were absent below the epigastrium;

there was very little sphincteric control. There was much ecchymosis over the middorsal region, but no evidence of vertebral fracture. Considering that compression was apparently not instantaneous and the absence of deformity, we concluded that we had to deal with a hematorrhachis.

Operation.—The patient was anxious for an operation. Accordingly the spinal canal was laid open by removing the laminæ of the sixth and seventh dorsal vertebræ. A large, rather firm blood-clot was found; it was extradural and was partly picked away with an anatomic forceps and partly washed away with a stream of normal salt solution. The cord coverings were found uninjured. The wound was closed.

Result.—The operative recovery was uneventful. Sensation and motion gradually returned. In a year he was able to walk fairly well with a cane.

3. Compression due to hemorrhage both on and in the cord. (Hemorrhachis, hematomyelia.)

Under this head there were two cases.

Case 4.—M. S., farmer, aged 32, fell from a tree, striking the back, middorsal region. He was found half an hour later, with complete paralysis of both lower extremities.

Examination.—I saw him a week later. Complete paraplegia. No sensation or motion below nipple line. Sphincters paralytic. Much tenderness over the third, fourth and fifth dorsal vertebræ. Spines slightly movable and depressed.

Operation.—The spinal canal was opened; the laminæ were pressing on the cord. They were removed. An extradural clot was found, the meninges seemed contused. The longitudinal incision exposed the cord and more blood-clots beneath the dura which appeared to occupy a part of the cord itself. They could not be all washed or swabbed away. The meninges were not sutured. The wound was closed.

Result.—The patient died in one week, apparently from meningitis.

Case 5.—D. F., bricklayer, aged 40 years, fell from a scaffold striking his back on some bricks, and became unconscious. He was removed to his home, regained consciousness in a couple of hours, having lost motion and sensation from the costal arches down.

Examination.—I saw him about ten days later. There was complete absence of motion and sensation below the costal arches. Both sphincters were incompetent. There was a slight depression over the seventh and eighth dorsal vertebræ.

Operation.—The spinal canal was opened; the laminæ of the seventh and eighth dorsal vertebræ were removed. The findings were similar to those in the preceding case.

Result.—The patient made a good operative recovery but died two months later, with no improvement in motion or sensation.

4. Compression without destruction of cord elements.

Under this head we had one case.

Case 6.—M. J., laborer, aged 36. While engaged about a building during the course of construction, a beam fell, striking him across the shoulders, doubling him forward. He was picked up unconscious. Four hours later, when consciousness recurred, he found himself paraplegic.

Examination.—I saw him about two weeks later. Temperature 103 F. Pulse 130. Paraplegic. He complained of great pain in his back. I found distinct posterior angular curvature, sixth, seventh and eighth dorsal spines prominent.

Operation.—An immediate laminectomy was done. The meninges and cord were apparently uninjured. The meninges were incised but the cord was found normal; two catgut sutures closed the coverings. The wound was closed and dressed. A plaster cast was applied with aid of a Bradford frame.

Result.—The operative recovery was uneventful. There was gradual improvement. At the end of six months he could walk with a cane.

5. Partial destruction of the cord at the seat of injury.

Under this group there were four cases.

Case 7.—O., farmer, aged 30, while diving into a shallow swimming hole, struck his head on the bottom, he was helpless immediately and it was with difficulty that he was rescued by his companions. All his extremities were paralyzed, the upper as to motion and the lower as to motion and sensation.

Examination.—He was brought to the M. E. Hospital ten days later. There was absence of motion in both upper extremities and partially as to sensation. In the lower extremities and trunk, there was no motion nor sensation. Bladder and rectal sphincters were incompetent. The neck was stiff, movements caused pain. A skiagram indicated a fracture, displacement of the fourth and fifth cervical vertebræ.

Operation.—Through a longitudinal incision, the loose laminæ were easily removed after the soft parts had been dissected off. The dura was lacerated by the sharp, fractured laminæ. The posterior columns were partly torn. After cutting away the lacerated tissues, the wound was closed.

Result.—Operative recovery was uneventful. He gradually regained sensation and motion, first in the upper extremities, then partially in the lower extremities. One year after the accident, he was able to stand on his feet but not to walk. He was able to get about in a wheel chair.

Case 8.—S. P., aged 40, brakeman, fell from the top of a box car, fracturing the laminæ of the fourth and fifth dorsal vertebræ, causing complete paraplegia.

Operation.—He was seen twenty-four hours after the accident. Laminectomy revealed torn meninges, a destruction of the left lateral half of the cord. Torn tissues were trimmed with scissors. The wound was closed with silk-worm gut drain.

Result.—The patient died one week after operation, from meningitis.

Case 9.—P. D. H., aged 29, brakeman, fell between two standing freight cars, striking the lower dorsal region on the rail. There was immediate and complete paraplegia.

Operation.—He was seen the day of the accident. I performed laminectomy of the seventh and eighth vertebræ. Partial destruction of the posterior columns was found. The lacerated structures were trimmed with scissors. Irrigation. Closure of wound. Silkworm gut drain.

Result.—There was recovery from the operation but no improvement, and he died in six weeks.

Case 10.—F. J., laborer, in a runaway, was thrown from his wagon, falling on his back. Immediate paralysis of both lower extremities resulted.

Operation.—When I saw him, about a week later, the ninth and tenth dorsal spines were movable. Laminectomy showed lacerated membranes and destruction of posterior columns. After removal of lacerated tissues and irrigation, the wound was closed. Chromic gut drain.

Result.—Operative recovery. For two months there was return of sensation, then he rapidly became worse and died ten weeks after his operation.

6. Total destruction of the cord at the seat of injury.

Under this head there were five cases of fracture and one a gunshot wound with complete division of the cord. None of these patients recovered. All died in periods varying from one week to eight months. In none of them was there improvement in sensation or motion. Four of them developed large bed sores. Death seemed to be due to gradual exhaustion, emaciation, and sepsis that apparently originated in the bed sores. One patient, with a marked posterior angular middorsal deformity and complete transverse destruction of the cord, died one week after his operation.

One patient, in whom a gunshot wound fractured the lamina of the sixth dorsal vertebra and lodged in its body, completely dividing the cord, lived four months.

Case 11.—C. D., aged 32, a coal miner. While at work, a mass of coal fell on his back, bending him forcibly forward. When removed from the mine, he was completely paraplegic.

Operation.—I saw him about five weeks later. Laminectomy of eighth, ninth and tenth dorsal vertebræ. Cord crushed.

Lacerated tissue was trimmed away leaving a defect of one-half inch. Suture of the ends of the cord was attempted but failed. Wound closed. Chromic gut drain.

Result.—Death in three weeks.

CASE 12.—J. D., aged 31. While at work in a stone quarry a stone fell on his back, striking the lower dorsal region. He had great pain at seat of injury. When picked up a few moments later, he was conscious and he stated that he could move both feet, although they felt numb. While being lifted into a wagon he received a severe jolt, and his legs at once became paralyzed. He was positive that the jolt caused the motor paralysis. He was taken to his home where I saw him the following day.

Operation.—A laminectomy, tenth and eleventh dorsal vertebræ, disclosed a complete destruction of the cord. Whether the laminæ were driven inward by the stone or by the jolt may be an open question. The laminæ, no doubt, were fractured by the stone, but it was probable that the dislocation of the laminæ was increased by the rough handling. The sharp fragments divided the cord. A curable patient was made incurable. After the torn fragments had been cut away, suturing with chromic gut was attempted but was not satisfactory, because the consistency of the cord was not firm enough to hold the suture. Wound closed as usual.

Result.—The patient died a week later.

CASE 13.—J. J. S., laborer, aged 27, was struck in the back of the neck by a falling tree, causing immediate paralysis, complete of legs, partial of arms.

Examination.—I saw him four days later. Tenderness was pronounced over the fifth and sixth cervical vertebræ. The skin was discolored at this point. The spines were movable.

Operation.—A laminectomy revealed a crushed cord to the extent of an inch. The wounds were treated in the usual manner.

Result.—Patient died ten days later.

CASE 14.—J. R., aged 28, clerk, was shot in the middorsal region, causing immediate motor and sensory paralysis from the costal arches down.

Operation.—Laminectomy of the fifth and sixth dorsal vertebræ. The cord had been cut by the bullet, which was deeply embedded in the vertebral body. The cord defect was cleansed from blood-clots and lacerated tissue. Wound closed.

Result.—The patient made an operative recovery, but died four months later from exhaustion and sepsis due to a very large bed sore on the sacrum.

CASE 15.—G. M., coal miner, aged 50. A mass of coal separated from the roof of a tunnel, falling on his back. When rescued by his co-laborers, it was found that his lower extremities had lost both motion and sensation.

Examination.—Two weeks later, when I saw him, paraplegia was complete. There was a distinct posterior angular deformity in the lower dorsal region over the tenth and eleventh vertebræ.

Operation.—Laminectomy disclosed fractured laminæ complete, laceration of the cord and crushed vertebral body, the tenth dorsal. It was not possible to correct the spinal deformity by either extention or pressure. The ragged cord ends were trimmed and the wound closed.

Result.—The patient died in four weeks, showing no improvement.

CASE 16.—D. S., farmer, aged 35, fell down a flight of stairs. He found it impossible to get up. After being put to bed, it was discovered that he had lost both motion and sensation.

Examination.—About one week later he was brought to the M. E. Hospital. He was found to be paraplegic. The fifth dorsal spine was movable, there was much pain in this region.

Operation.—Laminectomy. The fifth and sixth laminæ were removed, the meninges were contused. The latter were opened and the cord was found to be pulpefied. Wound closed in the usual manner.

Result.—Operative recovery was uneventful. He died from exhaustion and septic absorbtion from a large bed sore two months later.

SUMMARY

We had two cases with a contusion of the cord due to momentary pressure of one or two laminæ, where the spinal arch sprang back into place instantly, leaving no permanent cord destruction. One patient recovered both motion and sensation, walking out of the hospital in three months. The other was able to walk with the aid of a cane at the end of a year.

There was one case of compression in the presence of non-deforming fracture due to hemorrhage in the spinal canal. In one year he was able to walk fairly well with the aid of a cane.

Two patients were operated on in whom there was compression of the cord due to hemorrhage on and in the cord. One died one week after the operation, the other two months later with no improvement.

There was one case with paralysis due to compression of the laminæ of the sixth, seventh and eighth dorsal vertebræ without cord or meningeal injury. Recovery. This patient could walk with a cane in six months.

Four patients were operated on who had a partial destruction of the cord at the seat of injury. One improved so that he was able to stand on his feet after a year; there had been complete paralysis of all four extremities due to a fracture dislocation of fourth and fifth cervical vertebræ. Another patient died six weeks after a laminectomy of the seventh and eighth dorsal vertebræ. The third died ten weeks after the removal of the ninth and tenth dorsal vertebræ.

From the record of cases we note that no patient with complete transverse division of the cord was either temporarily or permanently benefited. All such patients died either from extreme trophic changes and exhaustion or from septic infection from the large bed sores.

ABSTRACT OF DISCUSSION

DR. H. W. HOWARD, Los Angeles: I shall not attempt to discuss this paper as a whole, but barely to emphasize the plea for early operation, believing that therein lies the only hope of relieving these poor unfortunates. It seems true that in the majority of cases in which the symptoms of severe injury of the cord have disappeared or greatly improved after operation, we are dealing rather with a compression than with total destruction of the cord. Still it has been proved beyond a doubt that regeneration of nerve fibers does take place in certain cases. There are many advocates for and against operative measures in these cases. When there is complete or partial paralysis and the extent of injury is very uncertain, I believe that operative procedures are necessary to clear up this point, also to give a chance to remedy the damage. One cannot say to what extent the cord has been injured until the dura has been opened. The external appearance of the dura frequently will lead one to believe that there has been no injury, or very slight injury to the cord itself, when on opening the dura one will find extensive injury.

Dr. Jonas has said that in most cases delayed operation holds no hope. I want to present a case here to illustrate that that is not always true.

The accident occurred in 1904 while the patient was diving in shallow water. It was followed immediately by paralysis, both motor and sensory, and semiconsciousness lasting two weeks; the consciousness then returned with partial or very slight sensation. Improvement was gradual for three months until he had very slight motion of the upper part of his arms only. Within a week this patient began to have bedsores, and in a short time his back was pretty well covered with them. After a year and a half some slight improvement began again, and for six months was rather marked. The bedsores healed up and he got more sensation and a little more motion. Paralysis of the sphincter muscles was complete, the patient having to be catheterized from the time of the accident until after operation. The bladder and kidneys became infected, and he was refused operation a number of times, being told that it was useless.

April 15 the patient presented himself to me, and a laminectomy was done.

The bodies of the vertebræ were found to be driven together, and there was overlapping of the laminæ. The laminæ of the fifth and sixth vertebræ were removed. The dura was found to be adherent to the laminæ and also to the vertebræ in front. The adhesions were broken up and the cord lifted to one side; the sharp projections from the bodies of the vertebræ were chiseled off, the cord replaced, the dura opened and found to be adherent to the cord for about 1½ inches. These adhesions were loosened, a probe passed up and down the canal to see whether there were further adhesions, which were found to be absent and the wound was closed.

The immediate effects of the operation were excellent. The heart steadied down; catheterization was found to be unnecessary after ten days; his bedsores healed, and in three weeks he had none; he began to use the intercostal muscles for breathing, and gradually returned to the use of the muscles of the arms and hands; the sphincter control of the bowels became normal, although at the present time he must take enemas on account of severe constipation.

In two months the patient was able to be propped up, feed himself with his hands, hold a newspaper, smoke a pipe, and was comparatively comfortable. He has improved steadily until at the present time he can move his legs. [Dr. Howard exhibited the patient.]

DR. STANLEY STILLMAN, San Francisco: My results in an operative experience of sixteen cases of fracture of the spine have been absolutely *nil*. The patients all recovered from the operation, but not one of them showed the slightest sign of improvement. The deformity in many of the cases was very slight. There was every reason to believe in some of them that improvement might be hoped for. Some of them lived for three years afterward, and one is now living six years since the fracture. The others died within three to six or eight months after the accident. The hope of regeneration after resection of a portion of the cord is of course absolutely futile. I have seen Sir Victor Horsley attempt to do such resection in an old case of fracture of the spine, encouraged by the "success" of an operation done in Philadelphia some years ago, in which it was claimed that regeneration of the cord had taken place after such resection and suturing of the damaged portion of the cord. But Dr. Murphy and others have shown us plainly that the nerve fibers not vested with a neurilemma are not capable of regeneration.

So that while I am not opposed in any way to operation, but, on the contrary, always give the patients and their friends the privilege of submitting to operation as offering the only possible chance of recovery, still it is done without any heart on my part, and without offer of probable benefit to the patient. In spite of the poor prognosis I think that operation is indicated, for it is certain that there are some cases, such as you have heard of here, in which pressure from hemorrhage, blood-clot or displaced fragments may be responsible for the paralysis, and in such cases recovery is possible. In fact, I have seen one patient recover without operation. The paralysis was not complete, and I did not operate on that account, and the patient recovered.

DR. C. P. THOMAS, Los Angeles: My experience has been about the same as that of Dr. Stillman. A number of cases have come under my observation in which I have operated with identically the same results. I believe that it is a well-established fact that regeneration of a severed cord by gunshot wounds or spinal fracture when immediate total paralysis follows, is irreparable; and regardless of what treatment we give these patients we get the same result—failure.

The patients that are relieved by operative procedure are doubtless those in whom the paralysis is due to pressure from hemorrhage; who would probably recover just as well without operation. I have seen a complete recovery after operation in a case in which hemorrhage was the cause; and I have also seen the same sort of paralysis follow injury to the spine—doubtless due to the same cause—recover without operation. So while with Dr. Stillman, Dr. Jonas and others, if the patient insists on it, and the family desire it, it has been my custom to do laminectomy. I always explain to them that it is my belief that the operation will not influence the recovery.

DR. D. C. STRONG, San Bernardino, Cal.: I want to thank Dr. Jonas for the attitude he has taken. The position taken by the greatest authorities almost precludes a man daring to operate in these cases. They speak as though the final word had been said on spinal-cord surgery, and that it only makes a bad matter worse to operate on a completely severed cord. This attitude has lessened the chances of many of these patients for recovery.

One year ago at the state society's meeting I reported and exhibited a case of complete severance of the cord, and a great deal of skepticism was expressed as to whether the cord had been completely severed or not. That was one of a series of four cases with which I have had to deal. In three of the cases practically no results were obtained. However, enough results in those three cases were obtained to lead me to believe that if properly handled we might expect a great deal more. These three patients all died from septicemia, the result of ascending infection; all three of them were suffering at the time of their injury from cystitis from specific infection. This one case which I reported was in a healthy, vigorous man, who was run over by a heavily laden wagon. The lower dorsal vertebra was fractured, completely severing the cord. The operation was done five days after the injury. The lacerated ends of the cord were trimmed off squarely and the cord united. The spinal nerve roots above and below the injury were approximated and united, taking care to preserve the ganglia, on account of the fact that the nutrient centers are in the ganglia and not in the cord. I believe it is due to the uniting of the nerves and the preservation of the ganglia that a large share of the function of the cord was maintained in this case. While the recovery was not complete, the man was able to stand, walk with the aid of crutches, and has apparently lost only the functions presided over by that portion of the cord actually destroyed. At present he is earning his own living.

DR. HARVEY CUSHING, Baltimore: Needless to say, only by a thorough preliminary neurologic study of these unfortunate patients can misinterpretations of the results of surgical measures be avoided. It is well for us surgeons to remember the pitfalls of the past, such as the reports of immediate restoration of function after suture of an injured peripheral nerve, a physiologic impossibility, of course, in the higher animals at least.

One may conveniently divide these cases into three groups. In the first operation is contra-indicated as spontaneous recovery is probable. The easily recognizable cases of hematomyelia are comprised in this first group; and the spinal palsies, accompanied by an acute flexion of the neck such as follow diving accidents, are often of this type.

Surgical measures are contra-indicated in a second group of cases, owing to the futility of intervention; and the mere fact that friends and patient desire it is not a sufficient defense or excuse for operation. These are cases of immediate total transverse lesion, after which a useful, if any, restoration of function at all is inconceivable. These cases are usually recognizable, if the patients are seen immediately after the injury, by the sharply cut, upper segmental level of total anesthesia and the complete abolition of the deep reflexes.

Now the third group of cases comprises those individuals with partial lesions from wounds or fractures in which prompt intervention is unquestionably indicated.

There are two points relating to the surgical treatment of these cases to which I should like to call attention. One concerns the care of the bladder, the other the method of entering the spinal canal. An immediate suprapubic cystotomy adds immensely to the comfort of these unfortunates and renders the liability of renal infection far less. In most of these patients the lower part of the trunk is without sensation, and it requires no anesthetic to make the very small suprapubic opening through which a retaining tube is introduced into the bladder. This obviates the dribbling which ultimately would occur, and favors the production of bed sores. It obviates, too, the irregularities of catheterization which must creep in in the best conducted surroundings. Urethral drainage by no means answers the same purpose.

Now as to the laminectomy. We must not forget that unless the laminectomy is delicately carried out the performance itself may do additional damage to the cord. Rough methods of exposure are much to be decried—methods of the mallet and chisel type. Adherence to such methods is what makes operators so often speak of the "shock" of laminectomies. Shock, so-called, arises from the trauma and loss of blood incidental to rough procedures. A laminectomy should be quite a bloodless performance and unattended by jar. It, in the first place, should be a median operation, hugging the spines and laminæ, from which the periosteum should be scraped away with care.

After removal of the spines the method of entering the canal which I employ is one which I can highly recommend to others. Primary entry down to the posterior ligaments is made with a Doyen perforator through the stump of each of the individual amputated spines—five or six, as the case may be, and rarely can a proper exposure be made with less. The perforator is followed by the burr which reams away each spine in turn and much of its adjoining laminæ. The lateral bony projections which remain can then be easily nibbled off with delicate sharp-nosed rongeurs, and a broad exposure of the canal is obtained.

The yellow, elastic posterior ligament is then delicately scraped away, down to the dura, and this membrane should be opened without injuring the arachnoid. This is an important matter and one, I believe, that is rarely observed. With the dura open and the bulging arachnoid uninjured the best possible view of the cord is obtained through the thin, delicate, transparent membrane, which will often enlarge the structures as though they were seen through a magnifying glass. I am sure that the emphasis which is laid on the loss of cerebrospinal fluid as an incident to "shock" is without foundation. A patient is so apt to be upset by rough methods of entry at this stage of the operation that the upset is attributed to evacuation of fluid, rather than to the preceding rough manipulations. In all cases, needless to say, the wound should be completely closed without drainage.

DR. A. F. JONAS, Omaha: Unfortunately we are not all highly trained neurologic surgeons, as Dr. Cushing is; and usually we get very little aid from the neurologists. Most of us who do general surgery have but a limited knowledge of neurology as affecting these particular injuries.

I have formulated this plan for my own guidance: in all cases of doubt, open the spinal canal. The opening of the spinal canal itself is not difficult or dangerous, and I am sure that in none of the cases in which I have operated have I made the patients worse. The wound itself heals well, and I have never had trouble with it. It seems to me for the average surgeon doing accident work, who has not had the advantages of neurologic training, such as Dr. Cushing has had, it is best to open the spinal canal and determine the exact nature of the injury.

It is true that all patients with transverse lesions of the cord have died sooner or later; but in partial cord lesions I have had one recovery, and that is the case of the fracture of the laminæ of the fourth and fifth cervical vertebræ, in which the meninges were torn and there was a considerable accumulation of blood, and the cord lesion was evident on examination. I admit there can be no regeneration of the cord when it has been transversely destroyed. It was impossible in my cases to bring the cord ends together and suture them, because the cord was so soft and inelastic, even when there was only a limited destruction of the cord elements.

The patients who recovered were those in whom there was a blood-clot in or under the dura, and the cord was not involved. They might have recovered anyway; but I could not tell positively before operation that there was no cord injury. So I opened them and did no damage.

The patients in whom there was hemorrhage in the cord itself, died; and so far as I have been able to learn from the reported cases, all such patients sooner or later die.

THE PRESSOR ACTION OF AN AMERICAN MISTLETOE *

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A certain mystic and poetic significance is attached to the term mistletoe because of the use of a European mistletoe (*Viscum album*) in the religious ceremonies of the Druids and in those of the early Christian church.[1] Norse mythology associated it with the worship of Freya, the Norse Venus, while Ovid and Virgil attributed magical powers to it. A species of mistletoe was collected with religious ceremonies by the Persian magi.

European mistletoe (*Viscum album*) has been used in medicine from very early times, its use being referred to by Paulus Ægineta,[2] Pliny, Dioscorides, Celsus,[3] and by the Moslem physicians Avicenna[4] and Ebn Barthar, although the conditions for its use have never been accurately defined. In the Middle Ages it had a high reputation in the treatment of nervous disorders.[5] In the seventeenth century interest was aroused by Boyle's note on the cure of epilepsy by it.[6] Recently Deguy[7] claimed that *Viscum album* was very serviceable in the treatment of albuminuria, and Delassus and Gaultier[8] have used it with some success in the treatment of tuberculous hemoptysis.

The gummy material obtained from this and other related plants has been used for the catching of singing birds, and, therefore, called "birdlime." *Viscum album* has been studied chemically by Grandeau and Bouton,[9] mainly with reference to its nutritive value. It has also been examined by Reinsch,[10] who isolated a crude product called viscin and a substance, viscautschin, resembling caoutchouc. Viscin yields viscinic acid and viscin oil. It is soluble in benzin, but insoluble in water. Viscin has usually been considered the active principle of *Viscum album*, although Reinsch, who first obtained this product, made no test of its physiologic activity. More recently Pavlevsky[11] obtained from *Viscum album* a crystalline acid by treatment of the plant with nitric acid, but nothing is definitely known of it. Crude viscin has been recommended as a coating for enteric pills, as a substitute for caoutchouc in the preparation of plasters and as a dressing base in cutaneous diseases.[12]

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* From the Laboratory of Pharmacology, Leland Stanford Junior University, Cal. Much of this work was done in the United States Department of Agriculture, at Washington, D. C.

1. For symbolism concerning the mistletoe see Fraser, J. G.: Golden Bough, 2 ed., iii, 446; also a popular article on the mistletoe bough in the Eclectic Magazine, 1892, new series, lv, 116; Am. Med., 1904, viii, 1032; Hazlitt, W. C.: Faiths and Folklore, ii, 412; Knott, J.: The Mistletoe, N. Y. Med. Jour., 1908, lxxxviii, 1159. This gives a detailed historical sketch of the usage of mistletoe.

2. Paulus Ægineta: Seven Books, Transl. by F. Adams, iii, 141, 1847, New Sydenham Soc.

3. Celsus, A. C.: On Medicine, ii, 18, 19, 31, 110, 204, transl. by A. Lee, London, 1836.

4. Foy, G.: Mistletoe, Med. Press and Circular, 1887, p. 588; Am. Med., 1904, viii, 1032.

5. Mistletoe in Medicine, Bookworm, 1894, vii, 358; Howell, T. A. S.: Viscum album, Practitioner, 1882, xxviii, 22; Colbatch, J. A.: Dissertation concerning Mistletoe, n. d.

6. Boyle, R.: Usefulness of Experimental Natural Philosophy, Oxford, 1664, p. 175.

7. Deguy: Viscum album, Jour. d. Pract., 1901, xv, 393.

8. Delassus: De quelques préparations officinales du gui (Viscum album), Bull. gén. de thérap., 1907, cliv, 174. Gaultier, R.: Résultats cliniques et expér. de quelques études sur la valeur thérap. et physiol. du gui de chêne, Bull. gén. de thérap., 1906, cliii, 67, 88, 141.

9. Grandeau and Bouton: Etude chimique du gui (Viscum album Linn.), Compt. rend., Acad. d. sc., 1877, lxxxiv, 129, 500. Grandeau, H.: Recherches chim. sur le gui, Ann. de la stat. agronom. de l'Est., 1828, referred to by Ginielis and Ray (original not seen by the writer).

10. Reinsch, P.: Beitr. zur chem. Kennt. d. Weissen Mistel (Viscum album L.), Neues Jahrb. f. Pharm., 1860, xiv.

11. Pavlevsky: Bull. Soc. chim. de Paris, 1880, n. s., xxxiv, 348

Muntz[13] obtained galactose by treating the gummy material with acid, and Tanret found both inactive and racemic inosit in *Viscum album*.[14] Others, as Knop,[15] Councler,[16] and Erdmann,[17] have studied the European mistletoe (*Viscum album*) with reference to its ash content. These analyses show a greater percentage of magnesium with reference to calcium than is the rule in plants. Recently Le Prince[18] obtained from this plant a volatile base having the empirical formula $C_8H_{11}N$. This compound gave the pyrrol reaction with a pine chip. Le Prince made no tests as to the activity of this base. He also reports the presence of a glucosid and resinous body, but details concerning the two latter bodies are not yet available.

This mistletoe has been used in certain parts of France as an addition to the food of stock,[19] but its value remains to be determined. According to Heim, dogs fed with this plant show scarcely any symptoms.

The common mistletoe of the eastern part of the United States is *Phoradendron flavescens*.[20] It is at times popularly called "golden bough."[21] This plant is often confused by medical writers with *Viscum album*. Both plants are parasitic to various trees.[22] Laurent has suggested that the European species secretes a principle which is poisonous to its host.[23] In this country various species of mistletoe are causing considerable damage to trees and work is now being done to obviate this destruction.[24]

Some years ago interest was reawakened in the *Phoradendron flavescens* by the announcement that marked oxytocic powers could be attributed to it. It was claimed that it was active even when ergot failed.[25] This plant has been used to produce abortion by the negroes of the southern states, and also by the Indians of Mendocino County, California.[26] It was also once supposed to be useful as an aid to fecundity. The Kaffirs of South Africa believe their species of mistletoe to affect the secretion of the kidneys.[27] The Chimariko Indians of California are said to smoke an oak mistletoe as a substitute for tobacco,[28] while certain of the Arizona Indians use the *Phoradendron juniperinum* as a substitute for coffee.[29] Both the *Viscum album* and the *Phoradendron flavescens* are claimed to have the same medical action and have been used as substitutes for digitalis in cardiac therapy;[30] but perhaps this belief has arisen by the confusion of the two species. The Orientals, however, consider the mistletoe injurious to the heart.[31] Payne[32] studied the action of the fluid extract of *Phoradendron flavescens* on various lower animals, but failed to control these injections with a corresponding amount of alcohol, and his data were insufficient to justify any conclusions.

Both the European and American species are claimed at times to produce poisoning. The symptoms reported have been those of vomiting and purging, and collapse;[33] hallucinations and bounding pulse, stertorous respiration, rigid and dilated pupils. Certain of the Indians,[26] however, assert that it is merely mistletoes grown on certain trees which are poisonous, and Cornevin questions if the European species is really poisonous.[34]

The American plant has practically fallen into disuse as a medicine, but now considerable attention is being directed to the study of the European species. Some years ago I noted that if an aqueous or a fluid extract of American mistletoe (*Phoradendron flavescens*) was injected into the cardiac end of the saphenous vein of a narcotized dog, whose vagi nerves had been cut, there followed a temporary fall in blood-pressure, but this was succeeded by a sharp rise associated with a rapid heart-beat; this rise in the systemic blood-pressure was very persistent. If the vagi were not cut the rise was more gradual, and if atropin had been previously used, the injection of mistletoe caused no initial fall in such animals. But while the rise in blood-pressure resembled qualitatively that produced by epinephrin, extracts of mistletoe when applied to the conjunctiva failed to produce local vasoconstriction. Accompanying this rise of blood-pressure was an immediate increase of urinary secretion. This increase in urinary secretion could be determined by counting the drops as they fell from ureteral cannulæ. A short notice of this find appeared,[35] but this investigation has been sidetracked by other work.

Of the plants known as mistletoe in our western states, three were examined: *Razoumofskya americana*, *Phoradendron juniperinum*, and *Phoradendron villosum*.[36] Of these *Phoradendron juniperinum* alone seemed to give the characteristic rise in blood-pressure.

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[12] Vorner, H.: Ueber Viscinum depuratum, Deutsch. med. Wchnschr., 1903, xxix, 744. Riehl, G.: Ueber Viscin u. dessen therap Verwendung, Deutsch. med. Wchnschr., 1900, xxvi, 653. Zumbusch, L.: Ueber Reindarstellung und Entfärbung des Viscins, Wien. klin. Wchnschr., 1903, xvi, 560. Loebell, W.: Verfahren z. Reinigung d. Rohviscins aus Ilexarten, Chem. Centralbl., 1906, lxxvii, 1150. Fendler, G.: Mistelkautschuk, Arb. a. d. Pharmazeut Institut d. Universität, Berlin, 1906, iii, 287. Warburg, O.: Die Kautschukmisteln, Der Tropenpflanzer, 1905, ix, 633.

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[14] Tanret, G.: Sur les inosites du gui, Compt. rend. Acad. d. sc., 1907, cxlv, 1196.

[15] Knop, W.: Ueber d unorgan. Bestandtheile d. Vegetabilien, Jour. f. prakt. Chem., 1846, xxxviii, 30.

[16] Councler, C: Aschenanalysen verschiedener Pflanzen und Pflanzentheile, Bot. Centralbl., 1889, xl, 129. Tubeuf, V.: Ueber Aschenanalysen von Viscum album, Bot. Centralbl., 1890, xli, 43, 80, 135.

[17] Erdmann, C.: Ueber d. unorgan. Bestandtheile von Viscum album, Ann. d. Chem. u. Pharm., 1855, xciv, 234.

[18] Le Prince, M.: Contribution a l'étude chimique du gui (Viscum album), Compt. rend. Acad. d. sc., 1907, cxlv, 940.

[19] Giniesis and Ray: Essais sur la valeur alimentaire du gui, Bull. Soc. cent. de med. vét., 1905, lix, 355.

[20] This plant was formerly named *Viscum flavescens*. See Rushby, H. H.: Phoradendron flavescens, Drug. Bull., 1889, iii, 254

[21] Nat. Stand. Dispensatory, 1907, p. 931.

[22] Nobbe, F.: Ueber die Mistel, Thar. forstl. Jahrb., 1884, xxxiv, 1. Brackett, M. M.: The Mistletoe, Plant World, 1905, iii, 265.

[23] Laurent, E.: Sur l'éxistence d'un principe toxique pour le poirier, dans les baies, les graines et les plantules du gui, Compt. rend. Acad. d. sc., 1901, cxxxi, 959.

[24] Bray, W. L.: Mistletoe Pest in the Southwest, Bureau Plant Industry, Bull. 166, 1910, U. S. Dept. Agric.

[25] Turnispeed, E. B.: Employment of the Mistletoe to Produce Abortion, Charleston Med. Jour. and Rev., 1851, vi, 448. Long, W. H.: Viscum album, (Mistletoe) as an Oxytocic, Louisville Med. News, 1878, v-vi, 132. Atlanta Med. and Surg. Jour., new series, 1888, iv, 197, 309. Baker, H. E.: Some Causes of Abortion, Oregon Agriculturist, 1902, xii, 155. Hobbs, A. G.: Mistletoe as an Oxytoxic, Louisville Med. News, 1878, v, 238. Crosier, E. S.: American Mistletoe, Louisville Med. News, 1878, v, 171.

[26] Chestnut, V. K.: Plants used by the Indians of Mendocino County, Cal. Contrib. from U. S. Nat. Herbar., 1900-02, vii, 344.

[27] Smith, A.: Contribution to the South African Materia Medica, 3 ed., p. 176.

[28] Powers, S.: Tribes of California, Contrib. to North Am. Ethnol., 1877, iii, 93.

[29] Hough, W.: Environmental Interrelations in Arizona, Am. Anthropol., 1898, ii, 142.

[30] Wenzel, H. P.: Mistletoe, Tr. Wis. State Med. Soc., 1879, xiii, 231. Howard, H. P.: Mistletoe as an Oxytocic, Med. News, 1892, lx, 547. Gray, D. E.: Mistletoe as an Oxytocic, Southern Med. Rec., 1888, xviii, 253. Park, R.: Note on the Therapeutics of Viscum Album, Practitioner, 1881, xxvii, 346.

[31] Ranking, G.: Mistletoe, Lancet, London, 1904, i, 756. Murrell, W., Payne and others: The Physiological Action and Therapeutic Uses of the Common Mistletoe, London Med. Rec., 1881, ix, 266.

[32] Payne, R. L.: Mistletoe, North Carolina Med. Jour., 1881, vii, 253.

[33] Buster, O. C.: Poisoning by Mistletoe (Viscum flavescens), Tex. Courier-Rec. of Med., 1887, v, 218; also Med. Times and Gaz., 1867, i, 26. Dixon, J.: Case of Poisoning by Berries of the Mistletoe, Brit. Med. Jour., 1874, i, 224. Dye, H.: Memphis Med. Recorder, 1855-56, iv, 344. North Car. Agric. Exp. Sta. Bull. No. 150, 1898.

[34] Cornevin, C.: Des plantes vénéneuses, 1887, p. 164.

[35] Am. Jour. Pharm., 1905, p. 493.

[36] For notes concerning various mistletoes, see v. Tubeuf, C.: Ueber die Beziehungen zwischen unseren Misteln u. d. Thierwelt, Naturw. Ztschr. f. Forst- u. Landw., 1908, vi, 47: Ueber die Bedeutung v. Beerenfarbe u. Beerenschleim bei d. Mistel, Naturw. Ztschr. f. Forst- u. Landw., 1908, vi, 141. Vrolik, G.: Over eenige physiol. Eigenschappen von Viscum album, Verschlagen en Mededeel. d. koningkl. Akad. v. Wetenschappen, 1857, v, 263. Hough: Am. Anthropol., 1898, ii, 142. Barrows, D. H.: Ethnol. Botany of the Coahuilla Indians of Southern California, 1900, p. 80.

In the case of the European species of mistletoe, *Viscum album,* Gaultier[37] found that the injection of extracts of this plant into the cardiac end of the vein of a dog, whose vagi were intact, was followed by acceleration of the heart-beat with a lowering of blood-pressure. Chevalier[38] traced this hypotensor action of mistletoe to saponin-like glucosids, but he did not isolate these bodies. Gaultier apparently makes no mention of any rise in blood-pressure, but he noted an increase in the urinary secretion. Doyon and Gaultier[39] have recently claimed that this extract interferes temporarily with the coagulability of the blood.

CHEMICAL EXPERIMENTS

The leaves and twigs of the *Phoradendron flavescens* were first used, but later it was found more convenient to start with the fluidextract of mistletoe such as is found on the market. All fresh fluid or aqueous extracts of the fresh *Phoradendron flavescens,* which were examined, produced this action, but some old ones were almost inactive. The fluid extract of mistletoe was bought from two of the large drug manufacturing firms of the country, in both of which botanical identifications are made. By starting with the fluidextract, the method of isolation of the active principle could thus be shortened.

At first lead acetate was used to precipitate various inert bodies. It was noted that, in removing the lead from the filtrate by hydrogen sulphid, the solutions lost their activity if this gas was passed into aqueous extracts of the plant, but not in the case of strong alcoholic solutions. As the use of lead did not simplify the problem, it was soon given up.

One hundred c.c. of the fluidextract of mistletoe were evaporated *in vacuo* to free from alcohol and the residue was then taken up in a little water. This solution (about 20 c.c.) was poured into a bottle of about 2 liters capacity and a quantity of ether poured on the fluid, and calcined magnesium oxid was gradually added in sufficient quantity to take up the water and free any base present. The bottle was shaken, preferably in a shaker, for about one hour, and filtered after five or six hours standing. Three such shakings extract practically all the ether-soluble pressor compounds. There was, however, some reason to believe that perhaps the mother fluid still contained a pressor body not shaken out by the ether. The ether, which had an amin odor, was filtered into a pear-shaped separatory funnel and a drop of concentrated hydrochloric acid added with a stirring rod. If there was merely a trace of water in the ether, clumps of beautiful crystalline needles would separate on the walls of the vessel. These crystals produced the intense and persistent rise in blood-pressure characteristic of the original extract. The amount of crystals obtained by means of hydrochloric acid was small and the yield was very uncertain, perhaps owing to the hygroscopic character of the hydrochlorid. The salt melted at about 250 C.

It was found that if, in place of hydrochloric acid, an ethereal solution of oxalic acid was used, a crystalline compound could be more easily obtained. On reprecipitation, these crystalline needles were usually perfectly white, although at times a third precipitation was necessary to remove all color.[40] If ordinary U. S. P. ether was used, these crystals gave an ash residue, but if the ether used for the extraction was first shaken with water to remove alcohol, and then distilled over calcium chlorid and sodium, the crystals obtained by this second shaking were practically ash-free and melted between 187-190 C. The oxalate was optically inactive. Some of the compound was apt to be lost in the second shaking with magnesium oxid and ether, so to avoid this only a minimum amount of water was used for solution and at first only small quantities of magnesium oxid were added, then the ether shaken vigorously and more magnesium oxid added, so as to take up all the water. Some experience is required to obtain a satisfactory yield.

Again, in isolating the base from the first oxalate, it was found necessary to use the purified ether, as the ordinary U. S. P. ether "shaking" yielded only a few crystals. The ethereal solution of the free base gave no precipitate with an ethereal solution of iodin, or of picric acid, or with carbonic acid, and the oxalate gave no precipitate with platinum chlorid. However, a platinum compound was obtained from the hydrochlorid.

On evaporating the ethereal solution of the base, freed from the colorless oxalate, a colored gummy material was left and this gave a colored solution with water, suggesting that the free base readily underwent oxydation.

Before analysis, the oxalate was shaken vigorously three times with anhydrous ether, so as to remove any attached oxalic acid and then the crystals were dried *in vacuo* over sulphuric acid. Of one sample of the second oxalate 0.1612 gm. were mixed with copper oxid and burnt. This amount yielded 0.3194 gm. CO_2 and 0.0858 gm. of H_2O, or C—54 per cent., H=5.95 per cent.

Of one lot made by precipitating three times with oxalic acid 0.0951 gm. gave 0.1889 gm. of CO_2 and 0.0549 gm. of H_2O, or C=54.1 per cent., H=6.4 per cent.

By the Dumas method and mixed with cuprous chlorid, 0.1504 gm. of one sample of the second oxalate gave 9.3 c.c. N at 21.8 C. and under 765.8 mm. barometric pressure, so that N=7.03 per cent., while .155 gm. of the second lot gave 9.75 c.c. N at 22 C. and under 763 mm. barometric pressure, therefore, N=7.15 per cent.

This would correspond to C 54 per cent., H 6.2, and N 7.09 per cent. The simplest percentage formula which would answer this requirement is $C_9H_{13}NO_4$. This would correspond to 4 oxygen atoms, so that only one oxalic acid group can be present. If we subtract the oxalic acid group, it would leave us $C_7H_{11}N$ as the probable formula. Hass[41] has shown that certain carbon compounds, when burnt by the copper-oxid method, do not yield the theoretical amount of CO_2, as some of the carbon passes off unabsorbed as methane. Under these circumstances the formula $C_7H_{11}N$ must be considered merely as provisional, at least until an analysis of the platinum-double salt can be made.

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[37] Gaultier, R.: Résultats cliniques et expér. de quelques études sur la valeur thérapeutique et physiologique du gui de chêne, Bull. gén. de thérap., 1906, cliii, 67, 88; De l'hypertension passagère comme cong. tuberc., vol. i, pt. 2, sect. ii, p. 821. Minola, G.: Sull' azione dell' estratto acquoso di Viscum album, Corriere Sanitario, 1908, xix, 66.

[38] Chevalier, J.: Recherches pharmacologiques sur le gui, Bull. gén. de thérap., 1909, clv, 459.

[39] Doyon and Gaultier, C.: Action de l'extrait de gui sur la coagulation du sang, Compt. rend. Soc. de biol., 1909, lxvii, 547, 719; Propriétés anticoagulantes du sang à la suite de l'injection intraveineuse d'extrait de gui, Compt. rend. hebd. Soc. de biol., 1909, lxvii, 567.

[40] A control solution of ammonium chlorid was similarly shaken with MgO and ether. The white crystalline body which was precipitated from the ether by an ethereal solution of oxalic acid showed no change when heated to 205 C.

[41] Hass, P.: Occurrence of Methane Among the Decomposition Products of Certain Nitrogenous Substances, Tr. Chem. Soc., London, 1906, xxxix, 570.

Barger and Dale[42] have recently shown that most of the activity of ergot is due to various amin bodies, primarily p-hydroxy-phenylethylamin, and Barger and Walpole have found that phenylethylamin is present in ergot in small quantities. This has been shown by Dale[43] to cause an epinephrin-like rise in blood-pressure. This rise resembles that obtained from the mistletoe base. Phenylethylamin has a percentage formula $C_8H_{11}N$.

As the mistletoe base gives the isonitrile reaction with caustic potash and chloroform a primary amin was indicated. These facts would suggest that perhaps the active principle might in reality be phenylethylamin, and that the carbon determinations were a trifle low, but phenylethylamin (Kahlbaum), when dissolved in ether and precipitated with oxalic acid, gave a body with C 64.6 per cent., H 7.3 per cent., and melted at 218 C. This would correspond to phenylethylamin monoxalate $[(C_8H_{11}N)_2C_2H_2O_4]$, and not to the dioxalate $(C_8H_{11}N.C_2H_2O_4)$. The monoxalate demands 65 per cent. C and 7.5 per cent. H. Benzylamin was first suspected to be the pressor principle, but its oxalate $(C_7H_9N\ C_2H_2O_4)$ melts at 175 C., that is, over 12° C. lower than the mistletoe oxalate. The fact that my analysis of the monoxalate of phenylethylamin by the copper oxid method gave a slightly lower percentage than the theoretical amount of carbon, would suggest that, perhaps, my carbon determinations are a trifle low and that the real percentage formula may prove to have the percentage composition $C_8H_{11}N$. So that at present, the data at hand is not sufficient to identify the active pressor principles of our southern mistletoes. Further chemical work will be done on this subject and the therapeutic possibilities discussed. The question whether this compound retains its activity when given by mouth with be investigated.

ABSTRACT OF DISCUSSION

Dr. Reid Hunt, Washington, D. C.: Do you consider the diuresis to be due to a direct effect on the kidney, or to result from the change in blood-pressure?

Dr. A. C. Crawford, Stanford University, Cal.: I have gone carefully over the early literature on ergot and have never seen any statement that there was a diuretic action associated with its use. I have not as yet analyzed physiologically the action of the mistletoe, but suspect that its diuretic action is secondary to that on the circulation; but cannot prove this at present.

HISTOLOGIC EXAMINATION OF THE FAUCIAL TONSILS WITH REFERENCE TO TUBERCULOSIS *

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The question of the relationship between the tonsils and tuberculosis is one that has been agitating the minds of pathologists and clinicians since Trautman in 1886 called attention to the possible connection.

It was not till 1895 that laboratory methods were brought to bear by Dieulafoy, who performed inoculation experiments on guinea-pigs and made the startling announcement that out of ninety-six pigs inoculated with bits of tonsil, fifteen showed tuberculosis. Later research has shown that these figures are not reliable.

The work has developed by rapid stages. Goodale in 1896 proved that minute particles of carmin could be absorbed quickly by the tonsil. Although bacteria are not so easily absorbed we have abundant proof that such absorption does take place. Dmochowitz and Wood have reported seeing the bacteria in the act of penetrating the tonsil.

The frequency of the presence of tubercle bacilli in the mouth varies enormously. In individuals in the later stages of tuberculosis of the lungs it has been shown that myriads of tubercle bacilli pass the tonsil in the sputum. Also the respired air carries tubercle germs in proportion to their presence in the atmosphere. Oral respiration favors infection from inspired air. It has been shown that air that has passed through the nasal cavities is remarkably free from bacteria. The next point that was conclusively shown is epoch-making in importance; it is that tubercle bacilli can be absorbed into the tonsils. All that is necessary is an ample dosage of sufficient virulence, without an injury to the tonsillar mucous membrane being necessary. Wood, in 1905, by experiments on hogs, which have considerable tonsillar tissue, was able to infect the tonsils and cause the formation in them of tubercles by simply swabbing on their surface virulent cultures of tubercle bacilli.

In this connection, the percentage of tonsils showing tubercles in patients suffering from tuberculosis is most interesting because we have in them the same conditions as in Dr. Wood's experiments. The percentage of such tonsils showing tubercles is so high that some men have even gone so far as to say that in all cases of tuberculosis of the lungs coming to autopsy the tonsils show tubercles.

It has thus been established fairly conclusively, by experimentation and actual pathologic observation, that the tonsils become infected with tubercle bacilli and that typical tubercles form within them. The infecting germs may be coming from within the body, in which case we have secondary tuberculosis of the tonsil, or they may enter the mouth with food or otherwise and find primary lodgment in the tonsil.

While it is conceded that tuberculosis of the tonsils is, as a rule, secondary to tuberculosis of the lung, and that primary infection of the tonsil is comparatively rare, a great deal of material has been collected in which diagnosis of primary tuberculosis of the tonsil has been made. The number of cases runs between 1,600 and 2,000 and the abundant material in the hands of different observers gives a percentage a little over 5. These figures are fairly well agreed on. The diagnosis in these cases has rested on inoculation experiments and histologic findings.

The next question is, What are the clinical earmarks by which we can look into the mouth and diagnose such an infected tonsil? Speaking as I am in this paper altogether of non-ulcerative processes, I might say that there are no signs by which the condition can be recognized. Some men have described particular features, but the majority of observers agree that there are no distinguishing signs. Danziger, for one, reports the careful examination of 100 tuberculous patients. A certain large percentage of such patients are said to have tuberculous tonsils. Danziger could recognize no points on which to make a diagnosis. When the course of infection is once followed into the tonsil, how much farther is it possible for the tuberculous progress to be traced?

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[42] Barger, G. and Walpole, G. S.: Isolation of the Pressor Principles of Putrid Meat, Jour. Physiol, 1909, xxxviii, 343. Dale, H. H., and Dixon, W. E.: Action of Pressor Amins Produced by Putrefaction, Jour. Physiol., 1909, xxxix, 25.

[43] Barger, G., and Dale, H. H.: Chemical Structure and Sympathomimetic Action of Amins, Jour. Physiol., 1910, xli, 19.

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It has been proved that the lymph from the tonsil drains first into the superficial glands of the neck, and then into deep glands. The first gland of the chain, Wood has called the tonsillar gland; it is situated near the angle of the jaw. It is usually the first to enlarge in tonsillar trouble and when pushed outward by underlying, swollen glands, may be mistaken for the submaxillary salivary gland. The passage of the tubercle bacilli from the tonsil to these glands has been shown experimentally by Wood. Not only were tubercles found in the tonsil after the swabbing of the hogs' throats with virulent tuberculous culture, but within a comparatively short time the corresponding cervical glands were involved. Not only was he able to show that the glands were involved simultaneously with the tonsils, but also that the glands could be involved and show tubercles without the tonsil, which had been swabbed, becoming involved. In other words, the bacilli passed through the tonsil without leaving any trace. Others have shown that the passage of tubercle bacilli and other germs through the intact mucous membrane of the intestine is quickly accomplished. Tuberculosis thus enters the system in doubtless many cases. Bacteria can also be made to pass through the intact mucous membrane of the mouth, but with difficulty.

The absorption is much slower than that from the tonsil, as shown by the infrequency of the cervical gland enlargement in inoculated guinea-pigs, which have little or no tonsillar tissue.

From the above citations the infection of tonsils and lymph-glands of the neck has been clearly established. The cause of cervical tuberculous adenitis in the great majority of cases is clear. What is the danger of general or pulmonary tuberculosis from tubercle bacilli entering by this path?

Grober has done some painstaking work and, as a result, contends that there is direct connection through the subclavian glands and by contiguity, with the pleura and apices of the lungs. In 1900 he believed he could trace particles of India ink from the tonsils to the apices.

Beitzke has criticized Grober's conclusions and summarized his own results thus: 1. There exist no lymph-vessels leading from the chain of cervical lymphatic glands to the bronchial glands. 2. Infection of the lung could take place only through the lymphatic trunk and veins. 3. This path is not of importance in children. The infection of the lungs and hence the bronchial glands as a rule takes place through aspiration.

Wood says the danger of systemic pulmonic infection resulting from a tuberculous lesion of the tonsillar tissue is about equal to that from tuberculosis of the cervical lymphatics. The lesion to be expected from the broken down glands of the neck is a miliary tuberculosis of the lungs. Further than this possibility, tuberculosis of the lymph-glands of the neck is no more dangerous than localized tuberculous lesion in any other portion of the body. It must be borne in mind, however, that the cervical glands are those most frequently involved, being affected in about 90 per cent. of the cases of lymph-node enlargement. The frequency of enlargement of these particular glands is noteworthy in the light of the experimental findings cited.

It would appear from the foregoing paragraphs that the etiology of tuberculous glands of the neck had been fairly established, but as many of our texts and best reference works govern medical opinion and action, a few quotations from them will show that there is need of all additional statistics possible on this subject. It was with the object of adding a little to these statistics that the work was undertaken at Cooper Medical College and this paper is presented.

Osler in his "System of the Practice of Medicine" says: "Much has been written of late on the relation of the tonsil to tuberculosis, especially with regard to the importance as a portal of entry; but even now, after the study of hundreds of cases, there is no great unanimity of opinion."

Keene's "System of Surgery," speaking of operative treatment of tuberculous glands, says: "Some patients are relieved of all symptoms of tuberculosis and gain rapidly in health. A considerable number fail to obtain a complete cure and succumb ultimately to pulmonary or to another form of tuberculosis.

Demmé found in a report of the Berne Hospital that in 29 per cent. of 692 cases of cervical tuberculous adenitis observed, the patient died of tuberculosis. This book does not mention the removal of the tonsils, which were the probable cause of the glandular condition. Is there any wonder that the glands go on enlarging and becoming tuberculous as long as one remains to *protect* the individual?

It is a fact that many of our general surgeons remove what glands they can in tuberculous cervical adenitis and will reoperate one or more times without removing the tonsil in its entirety.

Since 1907, 1,088 pairs of tonsils have been enucleated in our private practice or in the ear, nose and throat clinic at Cooper Medical College. Of these, 772 pairs have been examined in the pathologic laboratory of the institution by Professor Ophüls and Assistant Professors Dickson and Oliver. This represents the sectioning of 1,544 individual tonsils and this material is equal numerically to about half of all the cases that have heretofore been gathered from the literature.

The method of examination has been to harden the tonsils for twelve hours in Orth's fluid and then make a few frozen sections from the middle of the tonsil. Where it seems advisable from the general appearance of the tissues, these are followed up in some cases by a few more sections. These additional sections are made in different axes. The tuberculous condition, when present, is quickly recognized and typical tubercles, as described in the original communication of Koch, are made the basis of the diagnosis. Most of the articles that have been published have gone into detail as to the great sources of error in the diagnosis of tonsillar tuberculosis until one is driven to the conclusion that absolute diagnosis is impossible. At the same time Wood, for example, and in fact all others, have accepted in their statistics cases where the diagnosis has rested on the histologic findings.

It is said that to establish a diagnosis of tuberculosis of the tonsil it is necessary (1) to demonstrate the tubercle histologically, (2) to find in it the tubercle bacilli and (3) to prove that they are tubercle bacilli and not some acid-fast impostor, by inoculation of animals which shall show at death tuberculosis. True, these are the laws laid down for the recognition of tuberculous lesion, but do we apply them in this hard and fast manner in diagnosing, histologically, tuberculosis of kidney, liver, lung or other organ?

Such evidence is certainly not required to establish the diagnosis of tuberculosis in other parts. The tubercles are identical whether they occur in kidney, spleen, liver, or tonsil, and inoculation of animals is required only when the typical tubercle cannot be found. The bacilli are not found in a very large percentage of cases where absolute and unquestioned diagnosis is made. Why, then, has there been so much question about the diagnosis of the tuberculous lesion in the tonsil? A tubercle in the tonsil must be differentiated from the round, light germinal area, but to the experienced eye there is no difficulty in so doing; there is no caseation in such an area.

The next point that investigators insist on is the presence of giant cells in the tubercle to establish its tuberculous character. Giant cells are fused epithelioid cells and are often found in the tonsil in tuberculosis, but it is certainly possible to make a diagnosis of tuberculosis from the tubercle without demonstrating their presence. Then it is said, even when we do find giant cells, that they may be caused by foreign substances. True, such giant cells may occur, but even then the picture to the experienced pathologist is not tuberculous.

I wish to add also that in the 1,544 tonsils examined not one such "foreign body giant cell" was found, and if it had been found, in all probability the foreign body would have been demonstrable.

In regard to the greater value of inoculation experiments, I should say that where performed on the tonsil they have not the same value as when performed on other tissues, because we cannot possibly free the tonsil, by washing or other means, from all tubercle bacilli that may be lurking in the crypts or elsewhere, and the use of the center of it might miss the tuberculous portion.

The quasi-inert character of the tubercles, and the difficulty in finding tubercle bacilli in them, would suggest that the resistance of the guinea-pig might be sufficient to withstand the few bacteria evidently present.

The presence, as we have seen, in tonsils of cavities containing from a few to 15 or 20 minims of creamy pus, adds to the difficulty of this method of diagnosis, for this pus would surely lead to acute peritonitis, if injected into the peritoneal cavity of a guinea-pig.

The finding of the bacilli, practically impossible with the means and time at hand, is open to the objection that acid-fast bacteria, though extremely rare in such a connection, may creep into our calculations.

It seems to me then that the histologic examination of the entire tonsil, the sections numerous enough to include every tubercle, is the only diagnostic method not open to criticism.

The work of the laboratory of Cooper Medical College has been histologic, but it has been subject to error due to the few sections made. Tuberculosis has been reported in thirty cases out of the 772.

A very thorough piece of work has been done by Dr. Downing, assistant in the clinic, in an endeavor to check up the laboratory findings and determine the percentage of error.

Dr. Downing examined a series of twenty pairs of tonsils which had been previously passed upon by the laboratory as free from tuberculosis. They were blocked in paraffin and sections stained about every 0.1 mm. throughout the entire tonsil. "This was considered amply sufficient to gain a section of any microscopic tubercle that might exist. Dr. Walsh of Baltimore, in studying the frequency of tuberculosis of the kidney, considered it sufficient to make only from three to 120 sections from the two entire kidneys."

Downing stained the sections in hematoxylin and eosin. The twenty pairs of tonsils examined gave from 100 to 216 sections to the pair. The average number was about 100, making a series of over 2,000 sections. In this series, Dr. Downing found one tuberculous tonsil that was overlooked by the pathologic laboratory routine. In this case 100 sections were made. Twelve of these showed definite tubercles with giant cells of the Langhans type. Dr. Boardman, working along similar lines, examined twenty-three tonsils already examined by the laboratory and found no tubercles present.

To sum up the work, there have been 772 pairs of tonsils examined by the pathologic laboratory routine under Professor Ophüls and Professors Dickson and Oliver. Thirty-eight of these sections, representing thirty pairs of tonsils, were pronounced tuberculous. That gives a percentage of tuberculous tonsils of 3.9.

The work of Drs. Downing and Boardman in examining a control of forty-three pairs with *one* tuberculous adds about 2.3 per cent. to the findings, making the percentage of tuberculosis in the tonsils 6.2.

The next question is, What has a study of the material afforded as to the influence of the infected tonsils on the cervical glands? We received communications from, or saw personally, 160 patients who had been operated on during the five years. Sixty-eight of these patients had enlarged glands, varying from slight enlargement, of probably benign character, to extreme tuberculous condition with softening, fistulas, etc. Of these sixty-eight cases, the glands subsided in fifty-seven cases and have not enlarged again.

In three of these fifty-seven cases the glands and tonsils were both tuberculous; the first was diagnosed by an examination of the tonsil and some of the glands which were removed prior to the tonsillectomy; the second was diagnosed from the presence of a cold abscess, opened at the operation on the tonsils, the third from the character of the very considerable swelling which subsided immediately on the removal of the tuberculous tonsil.

This leaves eleven of the sixty-eight cases with enlarged glands to be considered.

1. In six cases, glands, enlarged before the operation, went down, but subsequently enlarged. Have a complete record of only four of these six cases. In the first case the tonsils were not tuberculous. The patient was operated on later in the surgical clinic; the glands were quiet for one year and then enlarged again.

In the second case the tonsils were tuberculous and fluctuating glands were opened at the time of tonsillectomy. They have since enlarged frequently.

In the third case the tonsils were not tuberculous; the glands were undoubtedly tuberculous. They went down slowly after the operation till six months later; then they swelled and a painless abscess formed that was opened. This healed, and the patient's health at present is good.

In the fourth case the tonsils were tuberculous; the glands were enlarged before operation, but went down slightly some months later. Suppuration occurred; they were removed and showed histologically tubercles. The present condition is good.

2. In two cases the glands were enlarged before and did not go down at operation.

In the first of these cases the tonsils were not tuberculous; the glands remained swollen after operating; have never broken down.

In the second case the tonsils were tuberculous. Tonsillectomy had no effect on the swelling of the glands. The glands were removed in a surgical clinic six weeks later. At present the cervical glands are still enlarged.

3. Three cases, in which there was slight enlargement before, present the same picture. The tonsils in these cases were not tuberculous.

To summarize 160 cases:

Ninety-two had no enlarged glands.

Sixty-eight had more or less enlarged glands.

Fifty-seven of these went down permanently.

Six went down and enlargement recurred.

Two which were enlarged before operation did not subside.

Three were slightly enlarged and are now.

1. It will be seen from the above records that quite a large percentage of the children had enlarged glands, but many of these were only slightly swollen.

2. Practically all of the glands giving trouble have been associated with tuberculous tonsils, or were tuberculous at the time of the removal of the tonsils.

3. That the removal of the tonsils worked in a beneficent manner is shown by the fact that often the swollen tuberculous glands subsided, though not always permanently.

4. That certain tuberculous glands are not associated with tuberculous tonsils is of especial interest. We believe that tubercle bacilli can travel to the glands without damage to the tonsil, and this accounts for the following facts (also for the higher percentage of tuberculous glands):

5. Glands once tuberculous, associated with tuberculous tonsils or not, may enlarge even after the tonsils have been removed.

6. We find tuberculous glands more often than we find tuberculous tonsils.

7. Even when there is a reappearance of the swelling, the glands show more of a tendency to heal and the individual to enjoy health after the tonsils have been removed.

In closing, I wish to call attention to a most noteworthy group of cases occurring in one family. They were referred to me by Professor Oliver, who made the pathologic examination of the tonsils and glands.

In the first case a girl aged 4 had much enlarged tonsils. There was no glandular enlargement of importance. The tonsils were removed and found to be tuberculous. The patient has been well since, with no enlargement of the glands. She has had diphtheria since. Her present condition is good.

In the second case a girl aged six had considerably enlarged glands. The tonsils were removed and showed definite tuberculosis; the glands later suppurated and were removed; they showed definite tubercles. The patient has had diphtheria since. Her present condition is good.

In the third case a baby aged 6 months had enlarged tonsils, but no glandular enlargement. The tonsils were removed and showed definite tubercles. The child had diphtheria one year later and following this succumbed to pneumonia. A grandmother living in the house had tuberculous laryngitis and the mother has fistula in ano.

The tonsils in these cases were quite large. A number of observers have said that tuberculosis is found more often in the small tonsil. We have found that to be the case in the majority of instances, but certainly not in all. One patient, for instance, had one large and one small tonsil. The larger was the tuberculous tonsil corresponding to the much-enlarged glands; the other was free from tuberculosis.

Perhaps the most significant point brought out by this paper is the fact that out of the 160 cases reported, though there were sixty-eight cases with enlarged glands, fifty-seven of which went down, there was not a single case in which there was enlargement of the cervical glands subsequent to the removal of the tonsils, except in those few (eleven) cases in which the glands were already enlarged at the time of the tonsillectomy.

135 Stockton Street.

ABSTRACT OF DISCUSSION

Dr. F. P. Emerson, Boston: In an adenitis which is far advanced it would seem that the primary source of the trouble was in the tonsil and that the tonsil should be removed radically. Sometimes the glands are enlarged by toxemia and will go down if the primary focus is removed. If the tonsil is tuberculous there may be a subsequent enlargement of the gland that will require its removal later. But we should go on record as being opposed to the indiscriminate removal of the tonsil. In the East the reaction has not taken place and we are radically removing all of these tonsils. If they are tuberculous there is no question about their removal. If they contain a focus of infection we should remove them. But we should encourage the profession to require a reason for removal of the tonsil. The general practitioner is assuming to dictate to the specialist what to do. He will direct the patient to go to Dr. So-and-So, who will remove the tonsil by the new method, which is with the capsule intact. But I think in every case the question whether the tonsil should be removed should be kept in our hands and we should have the courage of our convictions and say, if the tonsil is enlarged only through hyperemia, that it need not come out necessarily, especially in a child, say, under 7 years of age.

REPORT OF PRIMARY INFECTION OF BULB SINUS AND JUGULAR IN A WOMAN OF FIFTY-SIX*

SHERMAN VOORHEES, M.D.
ELMIRA, N. Y.

History.—April 10, 1909, Mrs. H., a woman aged 56, was admitted to the surgical ward of the Arnot-Ogden Hospital. The patient said she had been in poor health for two months past but had kept to her work, which was that of a forewoman in a knitting mill. Two weeks prior to her admission to the hospital, I was asked by her physician to see her in consultation at her home, as she had been ill of influenza for about a week and was having severe pain in the right ear. On examining the ear I found a small perforation in the lower posterior quadrant through which some pus was flowing. The upper part of the drum was highly inflamed and bulging. Under local anesthesia I incised this freely and left the after-care of the patient to her physician. I did not see her again until she was sent in on my service at the hospital.

Examination.—On examining the ear I found a very free discharge and a good opening in the membrana tympani, which seemed adequate for the escape of pus. The patient told me that she had constant pain and the discharge had been very profuse. She complained that the pain was deep in the ear, and pressure over the tragus caused acute suffering. There was no tenderness over the mastoid or sagging of the wall of the canal, and no enlargement of lymphatics about the neck, although she complained that the pain sometimes radiated down to the clavicle. Her temperature on admission was 102.2 F. at 11 a. m., pulse 100, respiration 24. At 6 p. m., same day, the temperature reached 104.2 F., pulse 104 and respiration 28. Under sponging and free catharsis it dropped to 99.4 F. A culture showed streptococci in the discharge and a leukocyte count of 9,200, with 85 per cent. polynuclear.

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* Read in the Section on Laryngology, Otology and Rhinology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

Treatment and Course of Disease.—The ear was irrigated with mercuric chlorid solution at three-hour intervals, and as the patient complained of aching, I prescribed for her sodium salicylate. She seemed very septic; the tongue was heavily coated, with sordes on the teeth, the breath foul. She kept complaining of the severe pain deep in the ear. Her temperature was taken at two-hour intervals for the next three days and ran between 99 and 103 F. There was but little tenderness down the neck, although she complained of pain at this spot at times. The leukocyte count showed 11,000, with about the same polynuclear percentage. She had a chill, and at 9 p. m. on the fifth day her temperature reached 105, and the pain in the ear and down the neck was intensified. I decided then to operate, as I felt sure we had a primary involvement of the sinus and perhaps of the jugular also.

Operation.—I opened the mastoid, which contained no pus, but all the cells seemed greatly congested and bled freely as they were broken down. On reaching the bone overlying the lateral sinus, this was found perfectly healthy and gave no evidence of disease underneath. This was chiseled away rapidly and the sinus was found to be very dark and pulsated and seemed soggy to the touch. I uncovered this vessel well toward the torcula and nearly to the bulb, and had on completion of the dissection a large vessel bulging into the bony wound. I made a long incision into the sinus, but except for some oozing from around the clot there was no hemorrhage. On removing the thrombus from above, hemorrhage was quickly established, but removing the plug from below and using the curette gently, did not establish hemorrhage from that source. I then prepared the neck and opening it along the anterior sternocleidomastoid border and opening the carotid sheath found the thrombus extending well down the vein. I ligated the vein close to the clavicle and high up in the neck. All its branches were thrombosed and these were carefully dissected out, together with the vein. Hemorrhage was established from above on removal of the ligature, probably from the inferior petrosal. The wound was cleansed and a cigarette drain inserted, and the patient sent to the ward.

Postoperative History and Treatment.—The morning following, the temperature was 97.8 F., and the pulse 94; the temperature remained normal until the end of the second day when it rose to 101.4 F. and kept gradually rising until it reached 103.2. The wound was dressed and seemed to be doing finely. The thrombus having shown streptococci, I gave the patient antistreptococcic serum. In a few hours the temperature dropped to 99.4 F., but by the end of the following day had reached 103.2 F. in the axilla, pulse 120, when I again gave another injection of the serum. At this time the patient became very restless and was delirious, the breath foul, sordes on the teeth and a badly furred tongue and the lips were cracked and sore. The urine up to this time had shown no evidence of kidney or bladder disease, but blood was noticed in the urine voided. The patient, when conscious, complained of pain in the right hip and radiating down the thigh and leg. On examination a large indurated area was found over the right hip which was very tender to touch but there were no points of softening. This thrombic area grew much more extensive and more hemorrhage occurred. Pus was present also in the urine and showed large numbers of streptococci. The patient was profoundly septic and only conscious part of the time. Control of bladder and bowels was soon lost and diarrhea supervened. The temperature ran between 102.4 and 104 F. and pulse 90 to 130, together with all symptoms of sepsis, and death took place on the nineteenth day after operation.

I do not believe that had I tied off the vein prior to opening the sinus it would have made any difference in the outcome, but think the woman had thrombus on admission and should have had early operation with tying off the vein first. The case is of interest on account of her age as it is rare to find primary thrombus at this time of life, and unusual also to have metastatic thrombus into the bladder.

408 North Main Street.

ABSTRACT OF DISCUSSION

Dr. J. F. Barnhill, Indianapolis: When a patient is violently taken, as was this one of Dr. Voorhees, with the discharge of a large amount of pus, it is certain that the pus is not coming solely from the middle ear, but from all the cavities leading into the ear. When we see such large quantities of pus or of serum, it almost certainly means an extension to the middle ear and its associated cavities. Dr. Voorhees was wise in sending the patient to the hospital, for it is difficult to make the diagnosis of intracranial complications in the home, unless one makes a hospital of the home. The diagnosis often escapes us because we are unable to get all the facts in the case, and unless a competent nurse is constantly present to observe and record them. Dr. Voorhees does not mention any chill or vomiting. Undoubtedly he would not have operated so early if he had not obtained so much help in the diagnosis. The affection of the bladder is a unique feature of the case. I have frequently seen affection of the limbs with abscesses. I have within a year had a case of sinus thrombosis complicated by a large abscess of the knee, in which the patient recovered. But the early diagnosis is very important in these cases.

Dr. W. E. Sauer, St. Louis, Mo.: Some of the members will remember the patient I presented before the Section at St. Louis last year. He had never had a discharge from the ear at any time. The case was referred to me by a neurologist, who had been called in by the general practitioner. Th patient had had no chill up to that time. The only thin which led us to suspect a phlebitis was the pain on pressur along the jugular. The patient was perfectly rational an gave no history of ear trouble. I did a paracentesis br nothing was found. An oculist was called in and some cor gestion of the disk was found. The next day he had a chi with a temperature of 103 F.; we operated and found th sinus filled with pus. There was an ultimate recovery.

Dr. P. Schoonmaker, New York: A case came under m care at the New York Post-Graduate Hospital on Dec. 30, 191 which this report brings to my mind. A German, aged 2 with a history of otitis media purulenta chronica since childhood; left ear healed when 10 years old; right ear continued to discharge until the time he presented himself at the hospital with a history of chills, fever, headache, pain and tenderness over the mastoid for three or four days. He presented septic appearance, demanding immediate operation. This wa done at once. Mastoid large, and external table sclerotic cavity large; pneumatic cells necrotic and filled with foul smelling pus and formative growth. The middle ear was i the same condition. I removed this and all necrotic bone uncovering the dura and sinus over a large area. The sinu was thrombosed, necrotic and collapsed on cross-section, discharging pus. I was unable to remove the clot from th sinus and secure free bleeding. The patient was in a collapsed condition. Saline transfusion and stimulation wer employed. The operation was stopped, the wound cleansed and dressed and the patient put to bed. There was a sever chill six hours later. Dec. 31, 1910, the pulse was 100, temperature 97 F., blood examination showed 30,400 white cell with 90 per cent. polynuclear cells. Patient was very septic body edematous; wound cleaned and dressed. Jan. 1, 1911 a second chill followed by high temperatures; jugular vei resected; sinus cleaned, obtaining free bleeding from torcula end; sinus packed; pus seen coming from dura behind sinus opening enlarged and about 2 ounces of pus evacuated from brain abscess; cavity cleaned and packed with iodoform gauze; wound dressed daily. The patient improved for three days. On the sixth day bleeding occurred from the nose which the house surgeon took to be an epistaxis and packed the nares. Death occurred a few hours later. Autopsy showed that the packing had been pushed out of the sinus and that the hemorrhage had come from the sinus through the Eustachian tube, causing death.

Dr. M. D. Stevenson, Akron, Ohio: I would like to cal attention to the importance attached to the microscopic examination of aural discharges in the New York Eye and Ear Infirmary. I learned last winter, from the bacteriologist there, and from Dr. Dench, that the presence in the discharge of the *Streptococcus mucosus capsulatus* is considered sufficient to justify early operation. The patient may have little or no pain, little fever, no increased polymorphonuclear count and very little, if any, leukocytosis, and yet if this germ is present there is likely to be early involvement of the sinus. After returning home I had my assistant examine the discharge more commonly than before and we discovered only one case. In that case the patient refused the operation suggested, but later I heard he had to have two operations performed. There were practically no other symptoms when I saw him, except the discharge.

Dr. Sherman Voorhees, Elmira, N. Y.: This was a primary infection of the bulb, undoubtedly, although I did not find any opening into the bulb. As the last speaker said, I am satisfied that the case came from infection of the bulb. There was absolutely no pus in the mastoid. Except for the cells being congested, there was no affection of the mastoid. I was, unfortunately, denied an autopsy. The diagnosis was made from the high temperature and the sudden drop. When we get a temperature of 105 to 106 F. I think we are justified in exploring to see if the sinus is not thrombosed. The infection must have come from the middle ear.

A CASE OF MYOSITIS OSSIFICANS PROGRESSIVA

ARTHUR R. ELLIOTT, M.D.
CHICAGO

The opportunity of recording the history of this patient I owe to the courtesy of Dr. Lucian D. Clark of Toledo, Ohio, who brought her to me for examination December 7, 1907.

History.—The patient, F. B., was a girl of 17. There had been *no other case of myositis ossificans in the family.* Both parents were of American birth, living and in good health; no lues, no tuberculosis; two other children were living and in good health, neither of them presenting any developmental anomalies. Birth of patient was non-instrumental and labor was *neither prolonged nor difficult.* She was breast-fed and did not suffer from any infantile diseases nor exanthemata. At the age of 1 year it was first noticed that the thumbs and great toes were malformed. The mother stated that shortly after the patient entered her second year lumps (nodes) were observed to form on the head. They were never due to injury and appeared and disappeared without apparent cause. They were tender to pressure but never suppurated. At intervals during the succeeding three years similar nodosities developed on the back and shoulders, coming and going, but never entirely absent. At the age of five torticollis appeared and persisted about six months, the muscles of the neck being hard and tender. Subsequently swellings appeared on the arms and legs, interfering greatly with voluntary movements, so that the patient could neither feed herself nor walk. These swellings were painful and tender and more or less ephemeral, shifting from place to place on the extremities, lumps or nodes showing from time to time on the back. These were very sore but never suppurated. Since the age of 5 the patient had never been able to freely abduct the arms and had never in her life been able to comb her hair. When she was about 5 years old her medical attendant discovered the existence of a valvular heart lesion. There had been no previous definite rheumatic or other acute infection. The general health had never been robust, but aside from the special disabilities of her disease there was an entire absence in her history of morbid incident until January, 1907, when she had typhoid fever. In July, 1907, Dr. Clark was consulted for stiffness of the jaws. The jaws were locked so that she was unable to masticate solid food and was compelled to subsist entirely on a liquid diet. The teeth could be separated but very slightly, the submaxillary region being filled with a hard bony deposit. Shortly after this development swellings were observed along both sides of the thorax. These were hard and circumscribed but were not tender to pressure or painful, and were apparently not connected with the ribs. These gradually disappeared. In October, 1907, the arms became stiff and the right elbow joint developed a partial fibrous ankylosis, preventing voluntary movements of the joint and but slight manipulative freedom of the articulation. The right elbow remained uninvolved and freely movable. Gradually the left shoulder became stiff, movements of the left arm on the body being seriously restricted.

There had been little pain throughout, the only subjective discomfort being a certain soreness and tenderness on pressure and manipulation of the indurated areas during the early stage of their formation. The skin over involved areas had at times been suffused and slightly edematous. As the indurations grew harder the soreness would disappear and when fully developed no tenderness was present.

Areas of involvement had been observed to disappear and there had been periods of arrest or quiescence during the progress of the disease. Soon or late, however, fresh areas of induration would make their appearance and run through a subacute progress to firm bony consistency causing much *interference with muscular function.* Repeated involvement of the same muscular area had taken place with final persistent hardness. There had been slight pyrexia at times. The patient's general health had always been unsatisfactory and her activities seriously compromised. Menses were regular since the twelfth year and somewhat profuse. There had been frequent epistaxis.

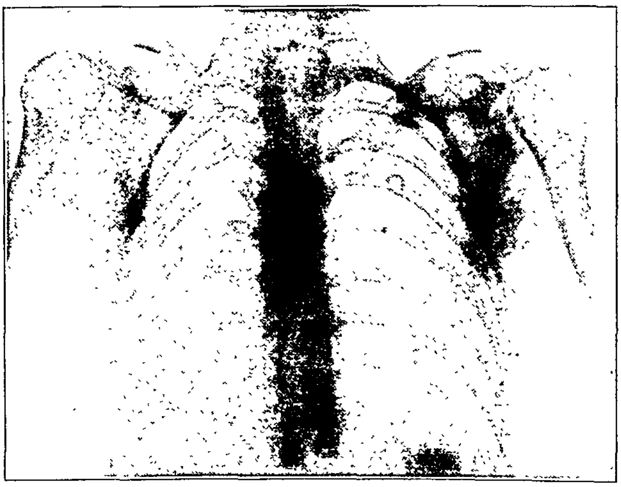

Fig. 1.—Bony induration of the submaxillary tissues; the lower jaw was displaced to one side and the incisor teeth did not articulate. The anterior and posterior muscles of the neck presented more or less induration; the mastoid end of the sterno-mastoid muscle was bony; a hard, insensitive node is shown on the superior border of the left scapular spine and small bony exostoses on the eighth, ninth and eleventh ribs near their posterior angles. A rod-shaped bony mass can be seen lying diagonally in the left pectoral region.

General Physical Examination.—The patient's stature was small, her face pale and round, her hair fine in texture and moderately abundant. The first point of interest to be remarked was the posture. The shoulders were rounded, the normal dorsal curve of the spine being increased. The head was bent forward, the chin flexed on the chest and there was but slight passive or voluntary mobility, either lateral or vertical, of the head. There was no hardness or induration of the masseters or other of the facial muscles. There were no cranial nodes. The teeth were well formed, even, with good enamel. The gums were soft and spongy at the teeth borders, bleeding easily, so that a tooth-brush could not be used. Maxillary movement was much restricted, so that it was possible to separate the teeth about an inch only, and the lower jaw was displaced from left to right so that the incisors did not approximate accurately. This restriction of movement and deformity was due to the presence of bony induration of the submaxillary tissues (Fig. 1). This mass was smoothly continuous with the jaw, reaching around to either angle. The overlying skin was soft and normal in appearance. Swallowing was not interfered with. The thyroid could not be palpated. The muscles of the neck, both anterior and posterior, present more or less firm induration, the mastoid end of the sternocleidomastoid being of bony consistency, while the clavicular insertions of the muscles stood out prominently and were firm but not bony. No glandular enlargements were present. A hard non-sensitive node was felt on the superior border of the left scapular spine. There were small bony exostoses on the eighth and eleventh right ribs and ninth left rib near their posterior angles and also on the crest of the ilium at the left sacral angle. The last was slightly tender to pressure. The body was bowed somewhat forward and rotation of the trunk or head was impossible. The patient could not pick objects off the floor. There was no scoliosis but the spine was rigid. When the patient was lying down, by placing a hand behind the head one could raise the trunk as if the whole spine were a rigid rod. A broad bony mass lying on either side of the lumbar and lower dorsal spine could be felt as if the erector spinæ muscles were turned to bone. This induration formed two parallel planks with a combined transverse diameter of 10 cm. and reached from the sacro-iliac border up well into the dorsal region (Fig. 2). These bony plates were slightly movable and seesawed when pressed on at either end. A very interesting development was apparent in the abdominal muscles of the right inguinal region, where a mass of firm induration about the size of the palm of a hand could be felt. This was of recent origin and was tender to pressure, the overlying skin being suffused and somewhat hyperesthetic. The pectoral muscles were hard and contracted, the arms being locked to the sides so that abduction was impossible. A distinct hard mass could be made out in the body of the left pectoral group (Fig. 1). This mass appears in the *x*-ray picture as a rod of bone, clubbed at both ends, lying in the long axis of the muscle and resembling in shape a child's femur. The biceps of both arms were indurated; no mobility of the shoulder-joints was possible. The deltoids and triceps appeared atrophied. The patient stated that but a few weeks before the arm muscles were much more swollen and hard than at the time of examination. The right elbow-joint was fixed in a position of slight flexion. This was apparently due more to muscular than to intra-articular changes (Fig. 3). A peculiar malformation of the right ulnar head existed. The ulna was about an inch shorter than the radius, to which it was attached by a bridge of bone (Fig. 4). A somewhat similar deformity was noted by Hutchinson[1] in one of his cases. Deformities of both thumbs existed. These consisted of complete bony ankylosis of the terminal phalangeal joints, the second joints being pliable but atrophied and dry (Fig. 5). There had never been any voluntary movement of the thumbs, which were held in a position of flexion on the palms. The thenar eminences were flat and atrophied. The muscles of the legs were much freer from involvement than the trunk and arm muscles, but the patient stated that they felt too short and often became sore and tender. There was some restriction of movement of the hips, knees and ankle-joints. Congenital deformity of both great toes existed. This consisted in the absence of one phalanx, the toes being short and directed outward, lying partly under the second toes, giving the appearance of hallux valgus.

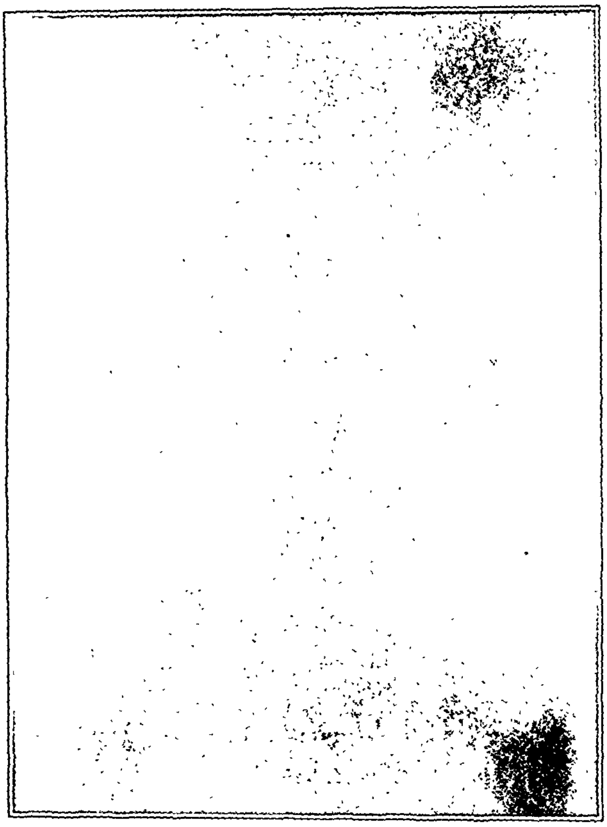

Fig. 2.—The spine was rigid. Broad bony masses are seen on either side of the lumbar and lower dorsal spine, as if the erector spinæ muscles were turned to bone, forming two parallel planks with a combined transerse diameter of 10 cm. They were slightly *movable.*

Visceral Conditions.—The skin was dry but not harsh, nipples deeply pigmented, mammæ undeveloped, no general panniculus. Lungs: Examination negative, respiration largely diaphragmatic owing to fixation of the thorax. Pulse 90, regular; temperature normal. Heart: Apex 12 cm. from midsternum; there was a well-marked systolic thrill and the double systolic murmur of aortic stenosis and mitral regurgitation.

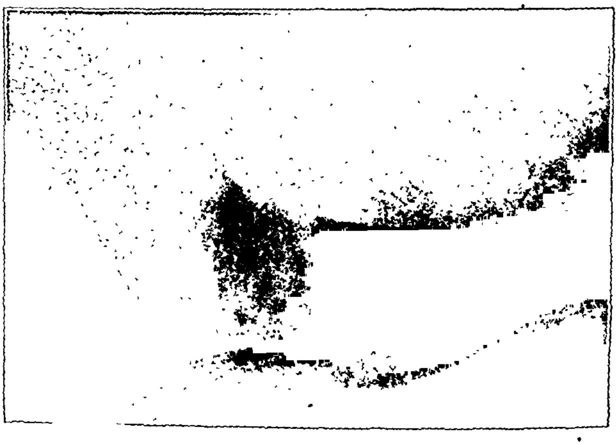

Fig. 3.—Showing the right elbow-joint fixed in a position of slight flexion and a peculiar malformation of the right ulnar head.

Abdominal examination was negative; no splenic or hepatic enlargement. A good view of the throat was impossible, owing to jaw-lock; throat smear showed pneumococci and staphylococci.

Leukorrhea present; vaginal examination not permitted and no smear could be obtained.

Blood Examination.—Specific gravity 1.054, erythrocytes, 4:420,000; Hgb., 75 per cent.; leukocytes, 10.800. Differential count: lymphocytes, 23 per cent.; large mononuclears and transitionals, 5 per cent.; neutrophils, 70 per cent.; eosinophils, 2 per cent.

Blood-Cultures: Two flasks of bouillon, one containing 2 c.c. blood and one 4 c.c., placed in an incubator at 37 C. for seventy-two hours showed no growth of organisms.

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[1] Hutchinson: Arch. Surg., vii, 1896.

Urine.—Quantity in twenty-four hours, 900 c.c. Sp. gr., 1.020; albumin, minimal trace; sugar, absent; indican, pathologic excess; urea, 20 gm.; uric acid, 0.653 gm. *pro mille;* sediment, cells, cylindroids, oxalates and urates: no casts.

Course of Disease.—The patient was not again seen until February 19. Her condition at that date was as follows: The induration of the biceps and arm muscles had very considerably diminished. The hardness and tenderness in the abdominal muscles previously noted had almost entirely disappeared, leaving only a small, circumscribed, insensitive area of firmness in the right inguinal region. Since last consultation a large sensitive node had formed on the left scapular spine, but this was undergoing resolution. This appearance of sensitive indurated areas and their subsequent gradual disappearance characterized the progress of the case from the beginning. For a fortnight previous to the last consultation there was a slight daily rise of temperature of about 2 degrees Fahrenheit at its maximum. Recent advices from Dr. Clark convey the information that during the two years that have elapsed since my last examination of the patient her condition has undergone no particular change.

The foregoing clinical history is reported because of the great rarity of cases of myositis ossificans progressiva and the interest attaching to its etiology. Since Freke's[2] first clinical report of this disease in 1740, his description, corresponding very closely with that now given, only 107 cases, including the one herewith described, are recorded in medical annals. Doubtless many more examples of the disease have been observed, but have not been made matters of record. For a full consideration of the subject those who may be interested are referred to Münchmayer's[3] classic description of the disease and to excellent monographs by Pincus,[4] Roth,[5] Helferich,[6] and DeWitt.[7] DeWitt's articles furnishes a review of the literature down to the year 1900, adding eleven collected cases to the sixty-seven already gathered by Pincus and Roth, making a total of seventy-eight cases to that date. Walker,[8] in 1908, taking up the records where DeWitt left off, added fourteen reported cases, bringing the total to ninety-two. Since that date thirteen new examples,[9] including the present report, have been placed on record and I have found in the literature four other case histories[10] that have been overlooked in the reviews mentioned, making the grand total 107 cases to January, 1911. But nine of these have been reported from America.

Progressive ossifying myositis is not to be confused with the less rare forms of local ossifying myositis following traumatism and inflammation. Many cases are on record of ossification of single muscles or groups of muscles, sometimes following a single severe trauma, in other cases resulting from repeated injury or prolonged irritation. Under this last head may be included the ossification of the deltoid and arm muscles of soldiers and the thigh muscles of riders. Mention should be made also of calcification occurring in the course of chronic inflammatory processes which may be rheumatic, tuberculous or syphilitic, or due to foreign bodies lodged in the tissues. Myositis ossificans progressiva is distinguished from any of these localized forms by the fact that it commences spontaneously in early life and progressively advances until the muscular system is extensively involved. A further distinguishing feature, if one were needed, is the occurrence in the great majority of these cases of congenital malformation and defect which shall be presently described.

Most of the recorded cases of myositis ossificans progressiva can be traced back to early childhood, the majority beginning before the tenth year. Owing to the masked character of the symptoms during its early stage it is often impossible to fix the exact date of its origin. The earliest signs of ossification reported occurred at 4 days after birth, at 3 months, 8 months (Wilkinson), and 3 months (Horand). Cases have been noted as beginning at a later period of life. Thus Kroneker relates the case of a woman in whom the disease began at 54.

Although of slow development and prolonged course the disease advances along definite lines to a uniform termination. This fact alone would suffice to establish the disease as a pathologic unit. The course of its development is about as follows:

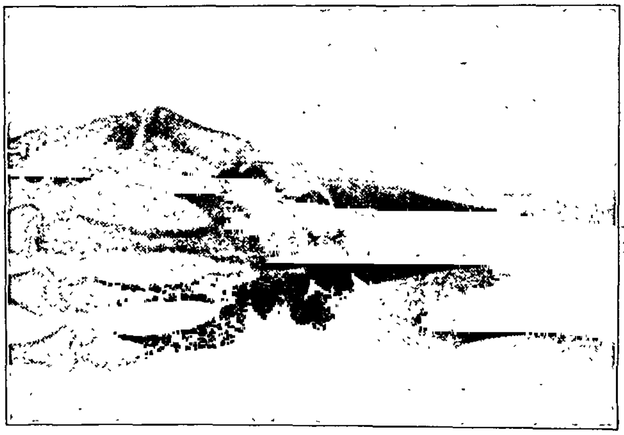

Fig. 4.—The right ulna presents a peculiar malformation, being about one inch short and being attached to the radius by a bridge of bone.

A child otherwise in good health develops a local swelling of tender character in some part of the muscular system, usually the neck, producing a condition which may be mistaken for torticollis, or the back or shoulder, pectoral or abdominal groups of muscles may be first affected. The involved area is indurated and may be the seat of local and radiating pains, and the overlying skin is not infrequently suffused and sensitive. After a period of several weeks, during which the local symptoms slowly abate, the swelling may disappear, leaving the muscle more or less indurated, a condition which is sometimes temporary but may remain permanent. A series of recurring attacks of myositis may affect the same area, finally producing a bony hardness of the muscle. During the course of years successive localizations of this character occur until a condition of deplorable deformity and crippling results. The joints may become fixed and greatly restricted in pliability, not by true ankylosis, but by the rigid bars of bone formed in the substance of the muscles acting on them. In this manner deflections of the spinal column, flexions and rotations of limbs occur. From pressure and irritation the overlying skin and cellular tissues may slough, forming ulcers and exposing the patients to septic accidents. In Linden's case the discharge contained gritty particles of bone and small sequestra. Sometimes large, deep abscesses are met with, doubtless due to irritation set up by sharp spiculæ of bone (Rogers, Stoneham).

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[2] Philosoph. Trans.

[3] Münchmayer: Ztschr. f. rat. med., 1869, xxiv, 9.

[4] Pincus: Deutsch. Ztschr. f. Chir., 1897, xliv, 179.

[5] Roth: München. med. Wchnschr., 1898, xiv, 1238, 1279.

[6] Helferich: Aertztl. Int.-Bl. München., 1879, xxvi, 485.

[7] DeWitt: Am. Jour. Med. Sc., 1900, cxx, 295.

[8] Walker: Tr. Coll. Phys., Phila., Series 3, xxx, 121.

[9] Nitch: Proc. Royal Soc. Med., 1907-8. Dighton: Edin. Med. Jour., April, 1908, p. 344. Garrod: St. Barth. Hosp. Rep., 1908, xliii, 43. Maxwell: Brit. Med. Jour., 1907, ii, 1647. Painter and Clark: Am. Jour. Orthop. Surg., Phila., 1908-9, vi, 626. Meltzer: München. med. Wchnschr., 1909, vi. Thompson: Proc. Royal Soc. Med., 1909-10, iii, No. 6, Chir. Sec. 151. Hart: Med. Cor.-Bl. württemb. ärztl. Landesver., Stuttg., 1909, lxxix, 908. Elliott, Geo. R.: Am. Jour. Ortho. Surg., 1910, vii, 332. Person: Khirurg. Arkh. Velyaminova, St. Petersb., 1910, xxvi, No. 60, p. 168. Mitchell: Jour. Nerv. and Ment. Dis., Lancaster, Pa., 1910, xxxvii, 547. Peteri and Singer: Fortschr. a. d. Geb. d. Röntgenstrahlen, xv, part 6.

[10] Burton Fanning: Lancet, London, 1901, ii, 849. Gillette: St. Paul Med. Jour., 1906, viii, 165. Krause and Trappe: Verhandl. d. deutsch. Röntgen Gesellsch., Hamburg, 1907, iii, 162. De Reinzi and Fittipaldi: Gaz. d. osp., 1903, xxiv, 118.

The distribution of the changes in the muscles is almost always the same, the trunk, upper extremities and neck being the seats of involvement. Rarely do bony plates appear in the legs, and the hands and feet are always exempt. The ossification of the muscles of the neck has caused the disease to be mistaken for torticollis and suboccipital Pott's disease. Of the facial muscles the masseters alone have been involved, this constituting a grave development by interfering with alimentation. A very frequent accompaniment or precursor of the myositis is the appearance of exostoses. These are most frequently seen where the long bones approach the surface; i. e., the anterior surface of the tibia, the ribs, the skull, etc.

One of the most striking and peculiar features of this interesting disease is its association with certain congenital deformities. This point was first noted by Gerber, but Helferich[6] emphasized the association as a chief characteristic of the disease, and since then 75 per cent. of cases reported have shown the peculiar congenital malformations. These consist of microdactylia, a shortening of the great toes and thumbs, and, more rarely, the little fingers, due to a dwarfing of the metatarsal and metacarpal bones, with subsequent ankylosis of the interphalangeal joints. This gave the false impression before the *x*-ray was used that one phalanx was absent. The great toes are often directed outward and frequently lie under the second toes, giving rise to the deformity of hallux valgus. Other less frequent malformations are absence of certain muscles, absence of lobules of the ears, absence of superior incisor teeth, atrophy of testicles, and mammæ, and sexual infantilism. It is interesting to note that deformities of the hands and feet were observed in the father of Sympson's[11] patient, although he did not develop the disease.

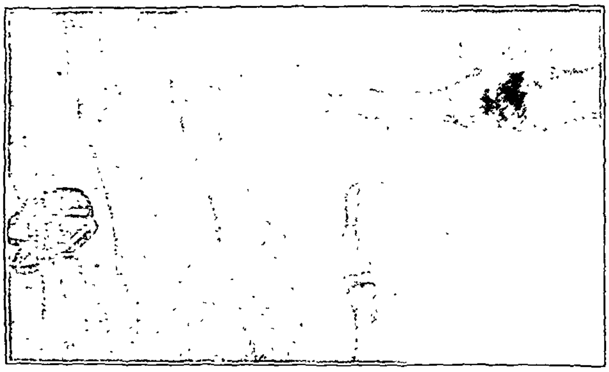

Fig. 5.—The thumbs were fixed in a position of flexion on the palms of the hands and could not be voluntarily moved. The terminal phalangeal articulation of right thumb has undergone bony ankylosis.

Myositis ossificans progressiva is essentially a chronic disease, subject, however, to exacerbations. An exception to this rule is noted by Ferraton,[12] who observed a patient who was able to eat in a perfectly normal manner on going to bed, but on rising in the morning found it impossible to open the mouth owing to involvement of the masseters, and at the same time noticed a hard tumefaction in the right masseter. The usual history of the disease is a slow progression with longer or shorter pauses, the general health as a rule remaining good until increasing disabilities interfere with feeding and respiration, or on account of the latter disturbance some pulmonary infection develops. The average duration of the disease is from ten to fifteen years.

The clinical course of every case observed leaves no doubt that myositis ossificans progressiva is an inflammation—a progressive polymyositis—terminating eventually in certain of the involved areas in ossification. In the case just reported I had the good fortune to observe an acute involvement of a very definite character in the parietal abdominal muscles. There were present all the signs of an ordinary acute myositis. Three months afterward, all indications had disappeared, the former involved area appearing normal in all respects. It is a matter of record that indurated areas that have existed for some time have undergone resorption, to the surprise of the observers. Although there is little to distinguish the individual lesion in its earlier course from an ordinary myositis, the disease becomes stamped with a special character when its course is followed for any period of time. A striking feature is its association with exostoses of the skull, ribs, scapular spines and ilia, which furnish proof of a tendency to aberrant bone formation, this later being further exemplified by the depositions of bone in the affected muscles. The congenital developmental defects constitute a very interesting feature, as they would appear to indicate the operation of a predisposing factor of congenital origin. The sequence of histologic changes through which the soft tissues pass to bone have been repeatedly observed and are exactly similar to those described in myositis ossificans traumatica. From the periphery to the center of the implicated area a sequence of fibrotic changes are apparent, passing through fibrocartilaginous transformation to osteoid trabeculation and calcification. New connective tissue, cartilage, osteoid tissue and bone are found in the same section. The new formed osseous plates possess the same histologic and chemical characters as does true bone.

Many theories have been advanced to explain the etiology of this extraordinary disease, but with little success at solving the problem. The disease cannot be classed with other conditions in which bone formation is observed as a terminal development, such as calcification in degenerated arteries, about old foci of tuberculosis, around foreign bodies, etc. These are but instances of the metaplasia of connective tissue and as such have eventuated in new formation of bone in nearly every tissue and organ of the body. The lesions of myositis ossificans are confined to the skeletal layer of the mesoblast. The visceral layer is never affected. There is no direct heredity. The only instance on record of occurrence in two generations of the same family is a case reported by Burton Fanning.[10] The father of Fanning's patient had suffered from myositis ossificans progressiva, dying at 33 from an accident.

No exciting cause but injury has been established as the starting point of the disease. In a few instances injury has certainly produced local ossification and proved the apparent inception of the disease. In four of thirty-eight cases collected by Pincus the onset is plausibly ascribed to injury. The site of the lesions in most cases is, however, opposed to this idea and in the overwhelming majority of cases no such explanation can be entertained. There is no doubt, however, that after the disease is well under way traumata that in normal individuals would produce no such result are followed by myositis and ossification. It is interesting to note at this point that research into calcium metabolism undertaken by Austin[13] on one of Painter's patients showed a perfectly normal calcium metabolism.

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[11] Brit. Med. Jour., ii, 1886, p. 1026.
[12] Ferraton: Rev. d'Orthop., 1903, Series 2, iv, 302.

Without entering into details regarding the many theories that have been advanced, it may be mentioned that it has been thought to be a form of rheumatism (Stoneham), a trophoneurosis (Nicholadoni, Eichorst, etc.), a new growth (Mays, Zeigler), a form of atavism (Brennsohn), while Hutchinson claims it to be a morbid tissue perversion analogous to retinitis pigmentosa and xeroderma pigmentosum. None of these theories meets with acceptance, the present trend of opinion being toward the view that owing to some disposing factor of congenital origin—indicated by so large a percentage of microdactylia and exostoses—the muscles seem to be endowed with very low resisting power and are consequently highly susceptible to inflammation from various exciting causes which ordinarily would not so operate, such as injury, chemical and bacterial irritants, etc. Combined with this low resisting power of the muscles there is a morbid disposition to aberrant bone growth which shows itself in the calcification and ossification of inflammatory products.

Herringham, in sympathy with Pincus, finds many points of resemblance to multiple fibromata, namely, multiplicity, limitation to certain mesoblastic areas, and benignity. They are both also congenital, increasing by gradually attacking fresh areas, but always growing from one tract of tissue, never involving any other by continuity or metastasis. The chief stumbling-block to acceptance of this idea is the existence of congenital deformities found in 75 per cent. of cases. These mark the disease as peculiar, and it is difficult to connect them with new growth. In this extraordinary disease we appear to be on the borderland between malformation and new growth.

I gratefully acknowledge my indebtedness to Dr. R. W. Webster for assistance in reviewing the literature.

31 North State Street.

FIBROMA OF NOSE

W. J. COLLINS, M.D., AND J. D. COLLINS, M.D.
NORTHAMPTON, MASS.

History.—The patient, H. B., aged 72, American teamster, had no remarkable family history. He had grip and severe pneumonia sixteen years ago; otherwise his personal history was negative. He admitted very free use of gin for thirty-eight years, but since 1905 he had taken not more than two drinks each month (?). About fifteen years ago he noticed a small red spot under the skin on the right side of the nose. The redness increased gradually until it covered the whole nose; then he noticed it was beginning to enlarge. The growth was very slow and gave him no inconvenience, except the appearance, until one month before he was seen. About this time he had dragging pain over the eyes, dizziness, frontal headache and when leaning over to lift boxes, etc., he would lose his balance and fall. These symptoms led him to seek relief. Previous to this time he had many strange ideas, that he ought not to part with the tumor, that he would bleed to death or die in some other way if it was operated on.

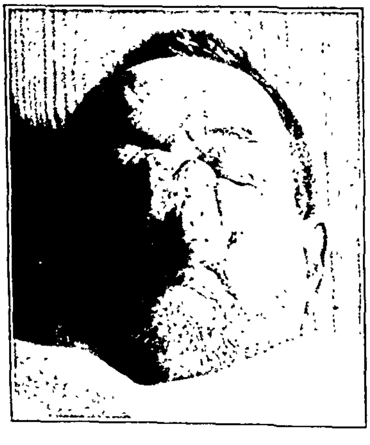
Fig. 1.—Front view of fibroma of nose.

Physical Examination.—The patient proved to be a remarkably strong healthy man, although 72 years of age. A lobulated mass 7.5 cm. lateral and 5 cm. vertical, was found firmly adherent to the lower three-fourths of the nose. It was somewhat larger and more dependent on the left and obstructed the field of vision, except upward and outward. It was firm to the touch and could be lifted away from the mouth, which it almost completely covered. Figures 1 and 2 make further description unnecessary.

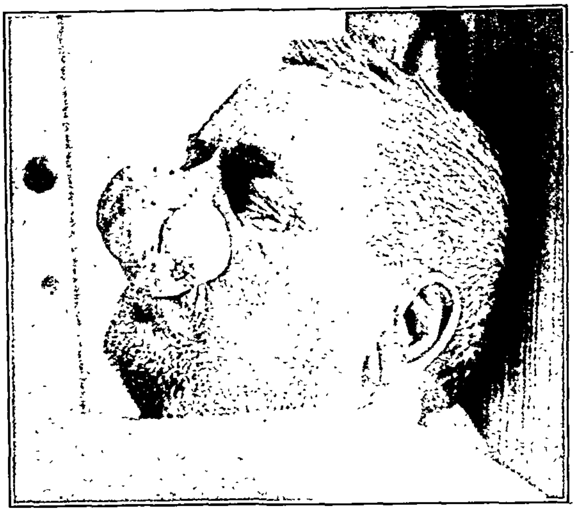
Fig. 2.—Side view of fibroma of nose.

Operation.—Under ether the growth was removed, an especially sharp scalpel being used. The rough and irregular tissue was shaved down to correspond to his normal nose, but in spite of much care, the right adherent ala was partly removed. The bleeding was very profuse but controlled by pressure and cautery. Four weeks were required for healing, and the patient would not allow skin-grafting to cover in the lower part of the left ala. Macroscopically, it was thought to be a fibroma—the end-result of an acne rosacea—and the microscope confirmed this diagnosis.

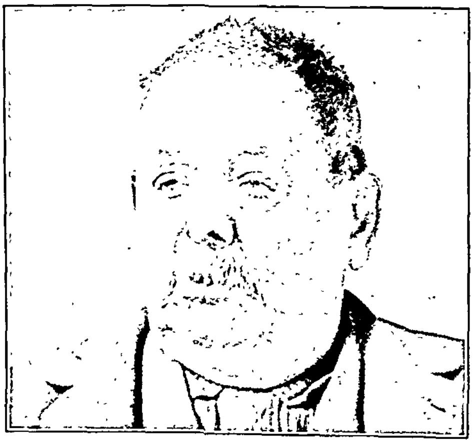
Fig. 3.—Same patient after removal of fibroma of nose.

90 Main Street.

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[13] Painter: Jour. Med. Research, n. s. xvi, 431.

SURGERY OF EXPERIMENTAL LESION OF SPINAL CORD EQUIVALENT TO CRUSH INJURY OF FRACTURE DISLOCATION OF SPINAL COLUMN

A PRELIMINARY REPORT *

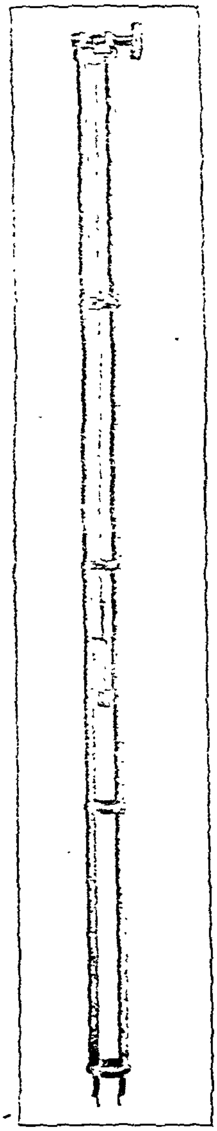
ALFRED REGINALD ALLEN, M.D.
PHILADELPHIA

PREFATORY REMARKS

In two former papers I have dwelt at length on the mechanical considerations of injury to the spinal cord in cases of fracture dislocation of the spinal column.[1, 2]

In this communication, therefore, I shall limit myself to the discussion of the experimental work in which I have been engaged for the past year in the laboratories of the University of Pennsylvania.

I would accentuate the fact that this is a preliminary report and that I am fully aware of the amount of control experimentation necessary before an *ex cathedra* statement can be made as to applicability of this work in the human subject.



Instrument for producing a measured impact on the spinal cord.

MEASUREMENT OF IMPACT ON SPINAL CORD IN SPINAL FRACTURE DISLOCATION

In order to arrive at an adequate concept as to the amount of impact a spinal cord could receive and yet recover its function, I designed an instrument whereby a given weight could be dropped from a known height thereby producing a given impact (see the accompanying illustration).

A dog having been thoroughly anesthetized, a laminectomy is performed, the instrument placed in position and the weight dropped on the spinal cord. The resulting impact in gram-centimeters is the product of the height in centimeters and the weight in grams. The element of friction in the instrument is so inconsiderable that it may be regarded a negligible quantity.

HYPO-IMPACT AND HYPERIMPACT

In my work I have used dogs varying in weight from 7.5 kilos to 18 kilos. The laminectomy has been performed in the lower third of the thoracic region.

I have found that a weight of 30 gm. may be dropped on the spinal cord from a height not exceeding 11.5 cm. with every expectation of an uninterrupted recovery on the part of the animal. The resultant of 339 gram-centimeters is one wholly in accord with complete autorestoration.

So soon as we exceed an impact of 340 gram-centimeters (to speak in round numbers) we obtain symptom pictures of more serious import.

Whereas an impact of 340 gram-centimeters will produce a complete paraplegia of spastic type, which, in course of a week or ten days, will have largely disappeared, so soon as we begin to use impacts of greater magnitude, we find the symptoms more severe and more lasting. Most animals injured by a 420 gram-centimeter impact will present a serious symptom picture; complete spastic paraplegia with scissor-like crossing of the hind limbs, emaciation, paralysis of the bladder and rectum and trophic lesions. An impact of 450 gram-centimeters will produce a symptom picture of complete transverse lesion of the spinal cord and the animal will die in the asthenic and toxic state so familiar to all who have had experience with fracture dislocation of the spinal column in the human subject.

I therefore term all impact below 340 gram-centimeters "hypo-impact," and all impact above this amount "hyperimpact."

THE HYPOTHESIS OF SYMPTOM-COMPLEX OF TRANSVERSE LESION OF THE SPINAL CORD IN FRACTURE DISLOCATION OF THE SPINAL COLUMN

Without restating *in extenso* the views concerning pressure on the cord from fragments of bone or the intramedullary pressure of hemorrhage or edema, with which views I have dealt in previous articles, I would say that I consider it a very uncommon occurrence to find a passive impingement of bone on the spinal cord when the operation of laminectomy is performed for fracture dislocation.

We must assume one of two theories, or probably both, in the etiology of cessation of function in the spinal cord in those cases in which the cord has not been literally cut through: Either there is a destruction of axis cylinders directly consequent to the impact, or else, owing to the impact, there is an edematous and hemorrhagic outpouring into the cord tissue, which by its pressure and chemical activity inhibits temporarily all conduction function, or destroys permanently the spinal cord.

In suggesting a possible treatment to aid and abet an autorestoration, it is obvious that the hypothetical factor of direct injury to the axis cylinder by the impact is beyond our reach, and that we should better confine our attention to the amelioration of the heightened intramedullary pressure.

This has been tried in years past by various means, such as cupping and other antiphlogistic devices. But the amount of benefit obtained has always been open to much doubt and in the fortunate cases, where restoration has taken place, the surgeon has found himself unconsciously imbued with a *post hoc non propter hoc* feeling.

THE SYMPTOM-CONTENT OF LONGITUDINAL SECTION OF THE SPINAL CORD

In order to ascertain the symptom-content of longitudinal section of the spinal cord, I performed laminectomy on a number of dogs. The dura mater was incised in the median line and held apart gently by means of traction sutures. Then with a very fine canaliculus knife longitudinal incisions from 2 to 3 cm. in length were made. In some cases a single incision in the median line, in others, bilateral incisions from the emerging posterior roots forward and inward were made. The incisions were carried completely through the cord. When the dogs came out of ether, they were able to stand and walk, showing very little weakness or awkwardness in walking. There was very little, if any, exaggeration of the reflexes of the hind limbs. A few days sufficed for the animal to recover his normal motor capabilities.

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* From the Department of Experimental Surgery and the Department of Neurology in the University of Pennsylvania. Read at the thirty-seventh annual meeting of the American Neurological Association, Baltimore, May 11-13, 1911.

1. Allen, A. R.: Injuries of the Spinal Cord, THE JOURNAL A. M. A., March 21, 1908, p. 940.

2. Am. Jour. Med. Sc., May, 1908.

This finding is at variance with the teaching of some of the older physiologists, who have reported paraplegia of spastic type after this procedure.

I cannot but believe that when paralysis ensues after this operation, it is most likely due either to cutting the cord obliquely owing to faulty technic, or else is secondary to inflammatory change from imperfect aseptic precautions. From this work I conclude that median longitudinal section of the spinal cord of the dog is provocative of no symptom of note.

EXPERIMENT OF MEDIAN LONGITUDINAL INCISION IN CASES OF HYPERIMPACT

Given, as the hypothesis, that there is a twofold factor after the impact: (1) the direct injury to axis cylinders from the impact; (2) the outpouring of serum and blood into the substance of the cord; given the condition of the closely investing pia-arachnoid and the inability of drainage; given the comparative absence of symptoms after median longitudinal incision into the cord — the corollary which presented itself was: What effect would a median longitudinal incision into the spinal cord have on subjects submitted to hyperimpact?

The factors suggesting this course were the need for spinal cord drainage, thereby accomplishing a spinal cord decompression, and the fact that the heteromeric neurons in the dog and in man are not of vital importance.

In five dogs I have used a hyperimpact of 540 gram-centimeters (30 gm. at a height of 18 cm.), and then made a median longitudinal incision from 1 to 1.5 cm. in length directly through the impact level and passing altogether through the spinal cord. These dogs made uneventful recoveries, in the worst instances showing only a slight spasticity and awkwardness in the hind limbs after recovery, but not enough to prevent running and jumping.

This impact would have led to the dire consequences which I have pictured above, had not the median longitudinal incision been made. The dogs would have died had not the spinal cord been drained.

DETAILED DESCRIPTION OF OPERATIVE PROCEDURE

An incision of about 6 cm. is made over the spinous processes down to the fascia. The fascia is incised and the muscles pushed well to the side by means of a periosteal elevator. Three spinous processes are cut off by means of bone forceps, and then the lamina of one vertebra is sawn through on each side and the fragment of bone elevated and removed. Further enlargement is obtained by means of specially fashioned rongeur forceps. It is necessary to have at least 3 cm. of the cord exposed so that careful observation can be made. The epidural fat is now wiped away, the impact instrument adjusted and a strong reading-glass focused on the segment of the cord to be struck. The blow is struck, and there is a single jerk of the lower extremities.

The instrument is instantly removed, when it is noted that instead of the cord being the natural color and the dura mater showing as an almost transparent covering through which the small vessels are easily visible, we have now to deal with a dark bluish-purple, swollen mass. I now take a very fine curved needle, and clamping it in a pair of mosquito hemostats I use it as a tenaculum to lift the dura preparatory to incising it centrally. If this incision be carefully made, there at once bulges out of the opening of 2 cm. a dark, beefy-red mass. This is the greatly distended pia-arachnoid. This hyperdistention of the pia-arachnoid extends longitudinally about 4 cm., and when torn by means of a fine tooth forceps it subsides in a great gush of blood and cerebrospinal fluid. It will now be seen that the substance of the cord appears pinker than it should normally.

A median longitudinal incision of at least 1 cm. is made completely through the cord, following which there is a goodly outpouring of blood and serum from the cord substance.

After the active bleeding ceases, the muscles are brought together by a close row of buried Pagenstecher sutures. The fascia is closed by means of a continuous Pagenstecher suture and the skin wound by means of Michel clamps. The dura mater in the dog is too tight to warrant trying to suture it, as would most certainly be indicated in man.

The dog is completely paraplegic following the operation, and it may be three or four days before there is any indication of return of power. In a week's time he is standing and moving about his cage with a very spastic gait. Little by little the power returns and the spasticity diminishes. The end-result is a complete restoration of motor power. The animal is able to run and jump and has complete control of bladder and rectum.

The only point in the convalescence which may give trouble is the development of what I might term an artificial spina bifida. Owing to the difficulty of closing the dura mater in the dog, there is a leakage of cerebrospinal fluid upward forming a fluctuating tumescence, possibly the size of an egg, at the seat of operation. This it is my practice to evacuate by means of an aspirating needle under the most stringent aseptic precautions.

This experimental work has been carried out under full ether or cloroform anesthesia; and at no time have the dogs given evidence of suffering pain.

GENERAL CONSIDERATIONS; OUTLINE OF FUTURE WORK IN THIS FIELD

There are many steps between the results above mentioned and the adoption of the median longitudinal incision through the injured area as a desirable method of procedure in cases of spinal cord injury in fracture dislocation in the human subject.

The first important step to determine is: How long after the injury to the dog's spinal cord can one wait and still obtain the good effect of the drainage from median longitudinal incision?

I shall conduct a series of cases of hyperimpact in which the median longitudinal incision is made two, four, six and twelve hours after the impact; then a series in which a period of twenty-four hours elapses before the cord is cut.

I have already tried to aid the drainage by applying a Bier stasis-hyperemia cup over the laminectomy area the day after the impact operation of median longitudinal incision had been performed. This I applied for half an hour twice a day, but the result was most unde sirable. The dog showed every symptom of complete transverse lesion shortly after the first treatment and died about four days later. On histologic examination, I found the gray matter of the cord greatly softened and hemorrhagic for a distance of 2 cm. above and 2 cm. below the impact area. It looked just as if the gray matter, naturally lacking in *Widerstandsfähigkeit* (resisting power) had given way to the negative pressure.

Of course, this is only one case in which the Bier's method was used. It is altogether possible that, with a more gentle suction, a better or favorable result might have been obtained.

I wish to call attention to a point which has impressed me greatly in all this work. I refer to the effect of severe hemorrhage during the operation on the period of convalescence.

Hitzig[3] has shown the baneful effect of exsanguination on the central nervous system. I also have noted in a previous work the great change in conductivity in *the lateral columns of the spinal cord in animals (dogs)* slowly exsanguinated.[4] There is no doubt to my mind that whenever I had much hemorrhage, the animal's convalescence was prolonged, his spinal cord symptoms more severe than the impact would warrant and the chances of an infection greatly augmented. I am convinced that this is an important element in the failure of operations on the brain and cord.

It is not my purpose to take up the histopathology of this work until a future communication. I shall only say that I have been surprised at the amount of ascending and descending degeneration that I have found by the Marchi method in the spinal cords of dogs which had recovered their motor power completely and which I had killed in order to make the histopathologic study.

My tentative conclusion is that in cases of fracture dislocation of the spinal column in the human subject, in which there exists the symptom picture of transverse lesion of the spinal cord, it were well to perform the operation of laminectomy at the earliest possible moment, and if the cord be not completely severed to make a median longitudinal incision through the area of impact by means of a fine canaliculus knife in order to drain the injured tissue of the products of edema and hemorrhage.

2013 Spruce Street.

Protective Detention.—Dr. Quinton, an English criminologist, is quoted by G. A. Auden (*Jour. Crim. Law and Criminology*) as saying: "Female offenders who are of weak intellect will gain incalculable benefit from the scheme of the royal commission, which provides for their removal from prison altogether. This class—a very pitiable one—never has been, and never can be, rationally dealt with under a short sentence system. Their vicious habits and criminal propensities soon alienate them from relations and friends who in despair of controlling them, abandon them to their fate—picking up a living on the streets. Petty thieving, drunkenness and prostitution bring them back to prison time after time, their only gain from imprisonment being the protection it affords them for the time being from the perils of the street, which, in the case of feeble-minded girls and women, are appalling. They need not only preventive but protective detention in some kind of institution other than the prison, for a much longer period than any term of penal servitude their offense would justify."

SEVERAL UNUSUAL JOINT CASES

THEIR TREATMENT AND THE RESULTS *

GEORGE W. GUTHRIE, M.D.
WILKES-BARRE, PA.

In reporting the following rather unusual cases I claim no originality, but simply aim to show what thorough asepsis, accuracy of adjustment and secure fixation will accomplish.

I make no reference to a rather large number of other fractures occurring in a field in which traumatism contributes greatly to the work of a surgeon, including fractures of the patella, nor to cases of delayed union, and ununited fractures occurring in the shafts of bone in which the open method and direct fixation have been called into use.

CASE 1.—The first case may be summarized as follows: Complete separation of the right olecranon, extensive injury of the soft parts, nailing, straight splint; complete restoration of function.

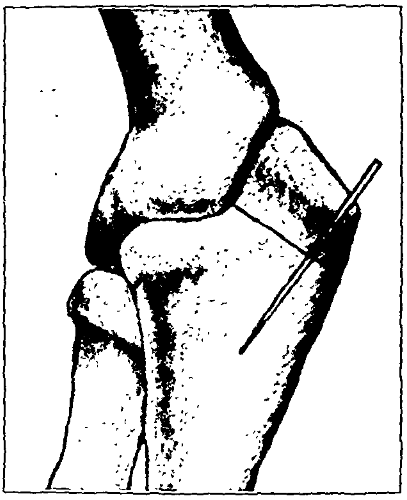

Fig. 1.—Method of fixing the broken fragment of the elbow joint in Case 1; the wire nail in position.

The patient was a male, aged 17, a pattern maker's apprentice. The injury was received by elbow joint coming in contact with a band saw; wound in soft parts 4 inches long across posterior aspect of elbow; olecranon severed ¾ inch below upper end; trochlear surfaces of joint scratched by saw; fragment of olecranon retracted by triceps. Reduction was effected by placing the arm in a straight position; fragment secured in place by driving a cast-steel wire brad, 1½ inches, No. 16, through fragment and into shaft of ulna (Fig. 1); wound closed with interrupted silk sutures, skein of catgut for drain, and straight anterior splint applied; wound healed without suppuration; nail was removed when it became loose, probably in the third week. Figure 1 shows the nail in position. The operation was done in the boy's home on a common kitchen table, a range for a sterilizer, a dish pan for instrument tray, in which instruments, nails, tack hammer, all were thoroughly sterilized. Passive motion was begun at the end of five weeks; six months after the injury the functions of the joint were perfect. Figures 2 and 3 show the limb in *straight position* and full flexion.

CASE 2.—The patient, a boy aged 10, was thrown from a horse while riding in the street; both condyles separated, probably an inch above the lower end of the humerus; distal end of proximal fragment thrust through soft parts in front of joint. Every precaution to produce an aseptic condition was taken. Complete reduction under anesthesia was effected by inserting fingers into the wound and securing perfect apposition of fragments, forearm was flexed on the arm and secured by a strip of adhesive plaster; the external wound was then dressed, and the upper extremity bound to the side of the body without a splint, as practiced by Mr. Robert Jones. Improvement was rapid and satisfactory; wound remained surgically clean; passive motion commenced at the end of the fourth week.

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[3] Hitzig: Physiologische und klinische Untersuchungen über das Gehirn, Berlin, 1904, part 1, p. 23.

[4] Allen, A. R.: Hemorrhage Into the Ventricles, THE JOURNAL A. M. A., July 18, 1908, p. 216.

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

Result: A complete restoration of function without deformity, as Figures 4 and 5 will show.

CASE 3.—This is the analogue of the first case. The patient, aged 42, a foreman carpenter, was at work on a scaffold at the second story of a building; a freshly ground hatchet lay on the floor of the scaffold. The scaffold fell, and when the patient was found, the hatchet had severed the head of the left tibia ¾ inch from the articular surface. The line of division extended three-quarters through the bone, then split upward into the joint. The incision in soft parts was 5 inches long. The severed fragment was secured in perfect position by two silver nails driven through the fragment into the shaft of the bone, the ends protruding from the upper flap of the wound about two inches; severed patellar tendon, ligaments, and other soft parts were closed with catgut, aseptic dressings applied and the whole limb encased in a plaster cast. The nails became loose in two weeks and were removed; cast removed at the end of four weeks, and passive motion commenced. Here the healing was without suppuration.

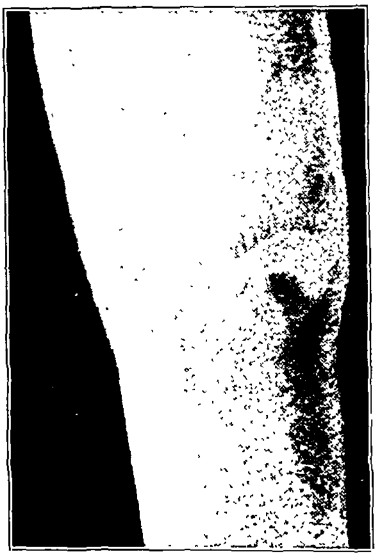


Fig. 2.—The result in Case 1, the arm held straight.

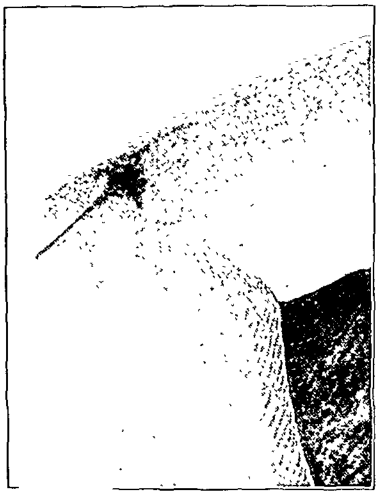


Fig. 3.—Showing the result with the elbow flexed in Case 1.

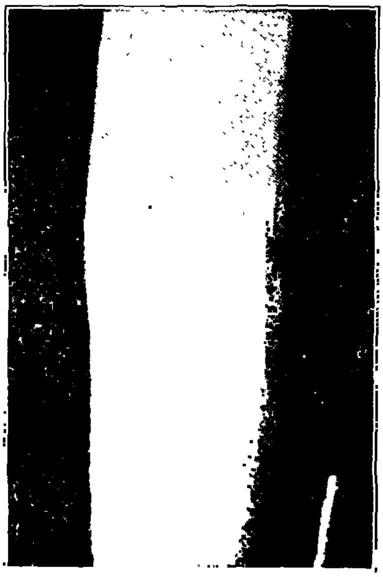


Fig. 4.—Showing result in Case 2, separation of the condyle of the humerus, the distal end of the proximal fragment having been thrust through the soft parts in front of the joint; complete restoration of function without deformity.

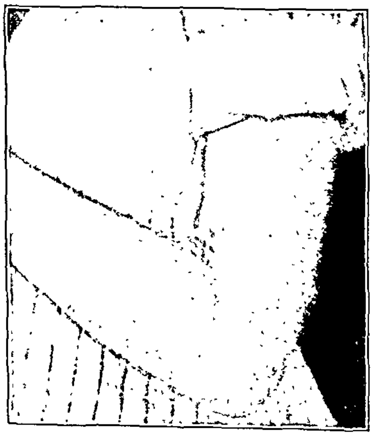


Fig. 5.—Showing result in Case 2 with the elbow flexed.

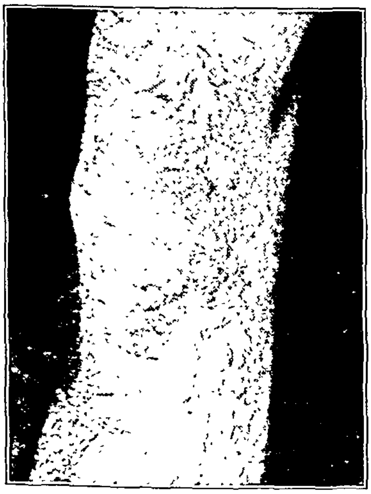


Fig. 6.—Accidental excision of upper end of tibia with healing and restoration of function, Case 3.

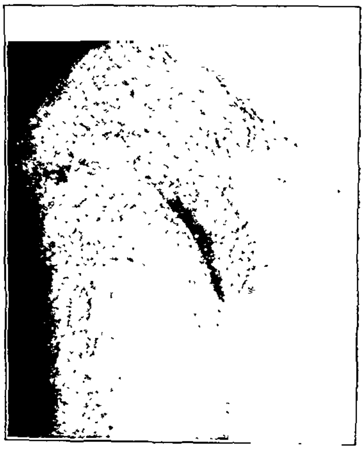


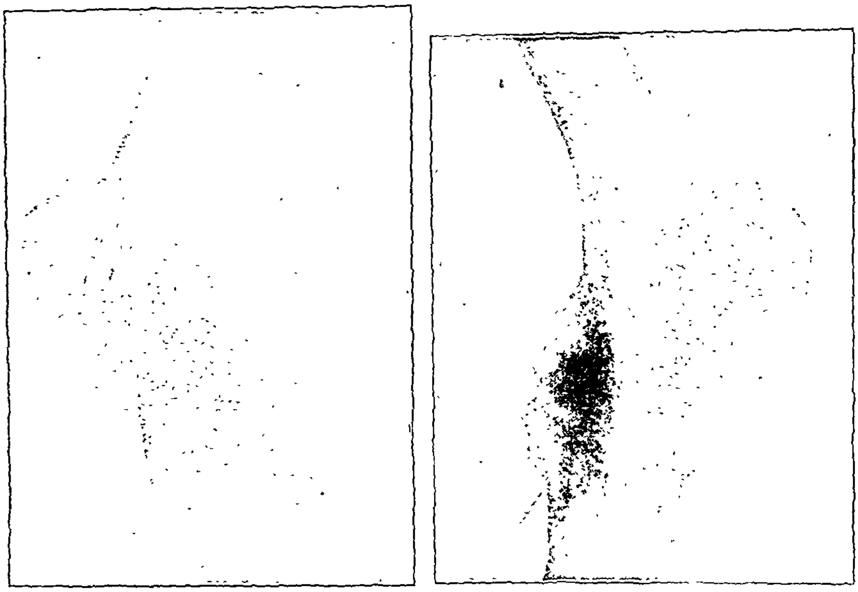
Fig. 7.—Showing result in Case 3 with knee flexed.

May 13, 1911, the patient came to my office; motion of left knee as good as in the right; conformation perfect, no difference to be observed. Illustrations (Figs. 6 and 7) taken May 13, 1911, confirm this.

CASE 4.—Patient, a woman, aged 48, 5 feet 2 in. in height, when she could stand erect, weighing about 160 pounds, came into my office in November, 1909, walking like a duck; legs flexed on thighs at an angle of 45 degrees, and ankylosed; for fifteen years she had had what was called rheumatism. The left elbow joint and the knuckles of right hand were, also, partially ankylosed, and the joints enlarged; also left bunion joint. An acute attack five years before was accompanied by chills, fever (temperature 105 F.), sweating, etc. The patient had always been regarded otherwise as a healthy woman. The menopause occurred at 39. The joints became fixed four years previously and had remained so. She had been treated in sanatoriums with baths, massage, electricity, etc. Her mother had had rheumatism in her knees.

The skiagraphs (Figs. 8 and 9) showed a considerable amount of exudate, and both patellas fastened by what appeared to be bony adhesions.

What to do for her was a puzzle. Forcible extension under ether would be attended with great danger to the soft parts, especially the blood vessels; tenotomy would be equally dangerous. Assisted by my son, Dr. Donald Guthrie, I operated Dec. 6, 1909: semi-circular incisions were made across the knees above the patella and through the tendons; on separating the left patella from the head of the femur, the articular surfaces were so injured that the patella was removed. The next step consisted in removing about an inch of the lower end of the femur with mallet (a potato masher) and a broad-bladed chisel. It was found then that the leg was quite easily straightened. A similar procedure was followed in the right side, except that the patella was not removed; both wounds were closed with catgut, without drainage, and plaster casts applied, and allowed to remain six weeks. Healing was satisfactory and good firm legs were secured.



Figs 8 and 9.—Skiagraph showing complete ankylosis of knee-joints in Case 4

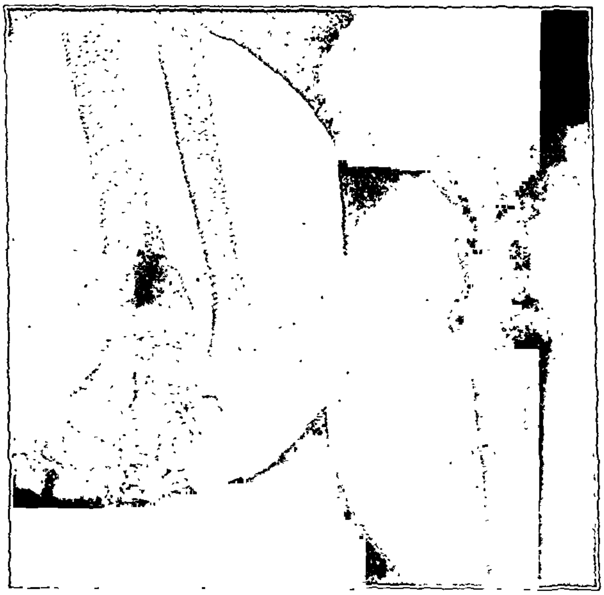


Fig. 12.—Skiagraphs showing the very satisfactory apposition secured in the compound, comminuted fracture at the wrist-joint in Case 5.

Present condition: The left knee is flexed about 10 degrees and fixed; the right is straight and has a motion of about 10 degrees. The cosmetic results are not the best, but the function of walking has been restored; the patient no longer walks like a duck, but stands upright like a human and goes everywhere, up and down stairs, all over the house, walks the streets, visits her friends, goes to weddings, and is a very happy woman (Figs. 10 and 11).

Fig. 10.—Anterior view of knee-joints following operation in Case 4.

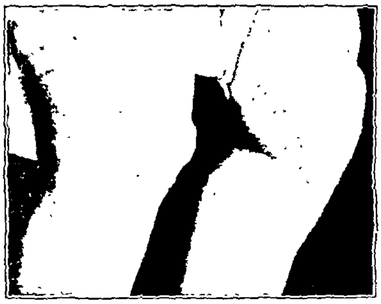


Fig. 11.—Lateral view of knee-joints in Case 4; left knee-joint fixed at an angle of ten degrees; right knee has motion of ten degrees.

I know the conduct of this case admits of argument: It may reasonably be asked whether we did the best thing for the patient under all the circumstances. Would it have been better to have attempted joint action by interposing a flap of fascia between the ends of the bone? Our reasoning was this: The first demand is a firm, strong knee-joint; the second, a straight leg; and the third, motion if possible.

Here was a patient, with a bad history for five years, weighing 160 pounds. A weak, flail-like joint would render her latter condition far worse than her former. We were painfully aware of the risk we assumed, but our asepsis was good, healing was kind, and good, firm knees resulted. A 10 degree flexion in the left does not interfere with her

Fig. 13

Fig. 14

Figs. 13 and 14.—Two photographs showing the cosmetic result secured in Case 5.

walking, and the same degree of motion in the right makes them correspond. I invite discussion and criticism.

Case 5.—This patient, aged 40, a painter of tall chimneys, stacks, etc., was brought into the hospital Sept. 2, 1910. He had fallen from a ladder 25 feet to a roof, thence to the ground, 15 feet. The right wrist presented an alarming condition of traumatism: a Colles fracture of the radius; the ulna was driven through the soft parts on the front aspect of the wrist, protruding 1½ inches; the styloid process was broken off, and the articulating surface comminuted. It was one of the worst-looking injuries I have ever seen.

Ether was administered; the fractured end of the ulna was trimmed up; then the dislocation was reduced, and with fingers in the wound, the fragments of the radius were accurately replaced. I held them in this position while my intern, with a good pocket knife, fashioned the splints according to my direction. The palmar splint was narrowed at the location of the external wound so as to admit of a change of dressing; the posterior splint made no pressure over the end of the ulna.

Healing was satisfactory, and June 3, 1911, the patient presented himself with the following result: The end of the ulna was much thickened from a superabundance of callus, pushing the hand to the right side; pronation, supination, flexion, and extension are all present, and he has a good degree of flexion of the fingers—not perfect, but improving.

The accompanying skiagraph (Fig. 12) was taken, and shows the very satisfactory apposition secured, and the accompanying photographs (Figs. 13 and 14) show good cosmetic results.

109 South Franklin Street.

A SIMPLIFIED PERITONEUM-GRASPING FORCEPS

JOSEPH RILUS EASTMAN, M.D.
INDIANAPOLIS

The abdominal viscera forceps here illustrated is not essentially different, so far as its efficiency or field of application is concerned, from other viscera forceps now in use. Its advantages rest in the ease with which the rubber tubing at the circular jaws may be replaced when worn or damaged in sterilizing, the security of the grasp, and in its durability.

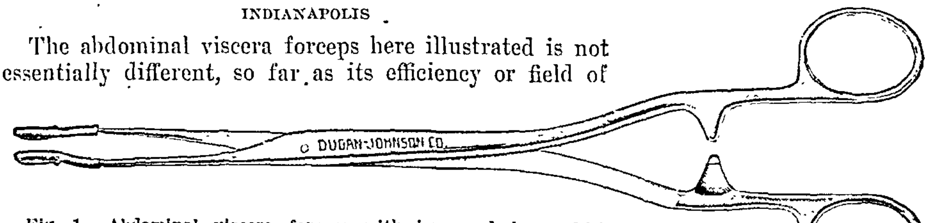


Fig. 1.—Abdominal viscera forceps with improved jaw, which increases the security of the grasp without injury to the part, and admits of easy replacement of the rubber covering.

The short elbow curve of each shank above the circular jaw allows complete coaptation of the rubber-covered rings, so that pressure is not brought to bear at a point, but over a larger area of the intestine, or other peritoneum-covered viscus.

The steel of the instrument is so tempered that crushing of delicate tissue is practically impossible. The grasp, however, is firm enough to be reliable.

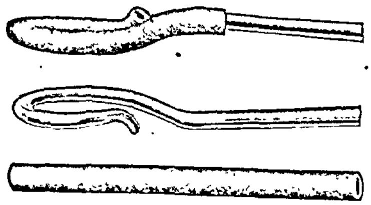


Fig. 2.—Showing the folding back of the end of the forceps blade and the short elbow curve of the jaw, which allows of pressure over a larger area of intestine. The rubber tube covering is also shown.

Sterilization by heat soon ruins the rubber of gut forceps, or renders it sticky. Therefore, it is desirable that the rubber be easily changeable. In the forceps shown in the drawings, small red gum tubing may be passed over the open rings and slipped off as often as required. The "heels" of the open ring are turned back in order that the ends of the tubing may be deflected from the grasping surfaces. For the same reason the tubing should be slipped along the forceps far enough to bring the proximal ends of the rubber covers over the elbow curve, and a short distance along the shank.

331 North Delaware Street.

BONE-GRAFTING TO FILL A GAP BETWEEN TWO PORTIONS OF A TIBIA*

F. A. McGREW, M.D.
LAPORTE, IND.

History.—At 11 p. m. of a day (Aug. 10, 1909) during which a little girl, 6 years old, had been wading in the water, she was taken with a violent headache and high fever. She seemed somewhat better the next day, but vomited in the afternoon. Forty-eight hours after the first symptoms appeared she grew worse again, had severe headache and high fever, with pain in the left side of the chest. A physician was then called. After a few days the pain disappeared from the left side and "moved across" to the right.

About a week later she had terrific pain in the right leg, or, as it seemed to the attending physician, in the knee-joint. She suffered "frightful pain" for a week, meanwhile undergoing treatment on a mistaken diagnosis of rheumatism. The knee and leg below the knee swelled, and a bulging abscess having appeared over the front of the leg below the knee, she was brought to the hospital and incision made for drainage. A few days later I was asked to see the patient in consultation.

The leg was much swollen on account of cellulitis. There was a small pre-tibial knife opening just below the patellar tubercle, through which pus was discharging. The leg was drawn up in extreme flexion, and when any attempt at movement of it was made there was every evidence of excruciating pain. The general condition was one of septicemia.

I advised free drainage of the tibial shaft, and the application of a posterior splint after straightening the leg under anesthesia, dressing slightly flexed. Only the latter part of the advice was followed. The child gradually improved, and finally was sent home. I had also advised that all the dead bone be removed eight weeks from the beginning of the tibial involvement. This advice, however, was not followed, and it was not until fifteen weeks after the initial symptoms in the leg, that the case came to me through the courtesy of Drs. Sutherland and Fargher, of La Porte. The patient was then in the Holy Family Hospital. There was profound septicemia, high temperature, constant very rapid pulse, emaciation, several discharging openings and great cellulitis of the leg extending to the thigh, and, in general, a very bad condition.

Operation.—Operation (November 29) was at once undertaken with the object of draining the pus cavities throughout the cellular tissue and shaft, with the intention of completing operation at a future date after suppuration had been controlled and the general condition improved. But, having once begun the operation, there did not seem to be any favorable place to stop as intended. An incision was made along the front of the tibia. The whole of the upper three-quarters of the shaft was found involved in the necrosis and removed. The upper extremity of the shaft was involved, the necrosis extending to the articular surface of the knee-joint, leaving on either side what appeared to be a sound shell or shelf of compact bone corresponding to the tibial tuberosities. New islands of bone, from 1/8 to 1/4 inch thick, had formed here and there on the periosteum. These were removed. The cellulitis was drained with rubber tubing, passed through in various directions. Pus bathed the whole leg. The cavity left after the removal of the necrotic shaft, lined by its periosteum, was cleansed and closed with catgut and the skin closed with silkworm gut to the upper end where an opening was left through which the cavity in the upper extremity of the bone was packed with iodoform gauze.

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* Read before the Laporte (Ind.) County Medical Society, June 9, 1911

Subsequent History.—As expected, suppuration of the periosteal cavity promptly supervened, but on account of the excellent drainage her temperature ranged lower, and her pain and general condition improved continuously. At first, dressing could only be done under general anesthesia, but with the improvement this was soon avoided.

There was little change, except a gradual improvement in all the conditions until May 7, 1910, when the cast was removed on account of an eczema of the leg and foot. A week later it was reapplied but thereafter it was a constant fight to keep the eczema within limits which would permit the retention of the cast.

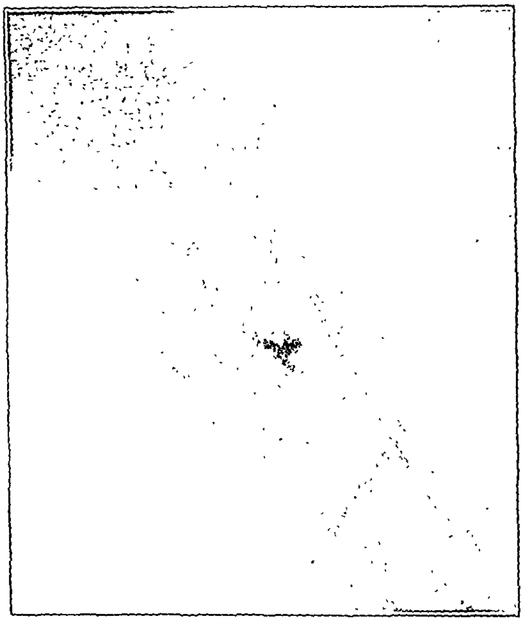

Fig. 1.—Skiagraph made Oct. 2, 1910. It shows the new shaft after ten months' development, associated with constant suppuration. Also the gap between the new and old portions of the bone.

Bismuth paste was at this date in May being injected into the sinuses leading into the upper extremity of the bone and also near the center and at the lower end of the operation wound. These had gradually improved, the upper one having closed entirely. The eczema was much better. The bone in the tibia had reformed enough to be solid, except at the upper end, where there was free mobility.

The cast applied in May was worn until July 2, when, the sinuses having all closed, a solid cast was applied and allowed to remain without change for three months. When removed, there was found to be mobility at the lower end of the newly formed shaft, while that at the upper end had disappeared and the bone was solid at its upper extremity.

A skiagram (Fig. 1) was taken Oct. 2, 1910, when the cast was removed. It showed the new shaft to be well developed toward the upper end, but dwindling toward the lower end, where it ran down irregularly to a blunt point, separated one-half inch from the rounded upper end of the lower residual portion of the tibia. Her general condition was excellent. She had been growing rapidly, and going to school during the fall months.

Second Operation.—The cast was left off a month hoping that movement might stimulate some further development of bone, but without result. Nov. 4, 1910, another operation for the purpose of closing the interval between the new and old portions of the shaft was undertaken. The incision extended from the summit of the inner malleolus diagonally upward and outward to the anterolateral aspect of the leg. The whole anterior and external surfaces of the lower tibial remnant were exposed, and also the lower end of the new-formed shaft. The two extremities were found to be separated by fibrous tissue in which was imbedded a small, irregularly shaped piece of bone. Union would not have occurred. The fibrous tissue was removed and the ends of both bones freshened by excision of their extremities, after which it was found that a gap of about one inch required filling.

With mallet and chisel a flap including periosteum and the full thickness of the bone was cut from the anterior surface of the distal portion of the tibia, leaving an attachment of periosteum at its upper end. This flap was turned about and its periosteum stitched to the periosteum along the outer border of the proximal portion, bridging the gap. The endosteum and periosteum had been carefully handled and preserved. The wound left in the bone by the removal of the flap was packed with iodoform gauze, and also the interval between the two bones which had not been filled by the flap. A dressing over all and a cast were applied, the latter being provided with a window for dressing the wound.

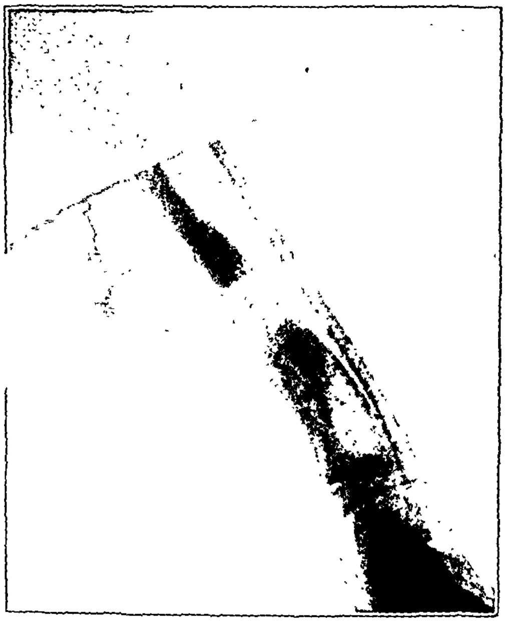

Fig. 2.—Skiagraph made June 1, 1911, seven months after the flap operation. It shows not only that the gap has been filled with new bone, but that the entire new shaft has been spurred to vigorous growth.

There was some swelling following the operation, the wound stretched apart throughout its entire length, and bone was exposed over a small area. When the wound first became red and swollen it was dressed with moist boric dressing and later with dry dressings and Peruvian balsam. It appeared to heal rather rapidly. The cavity corresponding to the interval between the two bones unfilled by the flap was kept carefully packed in order to keep the tissues from crowding in between the two ends of the bone. Gradually this interval filled with granulation tissue, but left a small discharging sinus. Bismuth paste was systematically and continuously injected into this sinus during the next several months. March 11, 1911, a small sinus was noted. A probe passed in came on dead bone which seemed to be movable, so a small sharp pointed artery forceps was inserted and the irregular jagged fragment of bone was withdrawn. There was good use of the ankle-joint. The knee-joint was also unrestricted in movement. The bone on this date seemed firmly knit together and as large over the former gap as the shaft above and below. There was no abnormal mobility. Somewhat more than three months therefore elapsed after bone-grafting before the union was complete, and at that time the gap had been completely filled.

The second skiagram (Fig. 2) was made about June 1. It shows the gap filled with bone. Also, it is interesting to observe that the new-formed shaft which was spindling and weak before the last operation had now become particularly strong toward its lower end, apparently stimulated to overgrowth by the coupling of the two portions by means of the bone-graft.

There is shortening to the extent of three-fourths of an inch. I am unable to say at present whether this is in part on account of injury to the epiphyseal line of growth or entirely because of the action of the muscles not wholly counteracted by the splint-like effect of the fibula. That considerable pressure was put on the fibula is shown by the fact that the upper extremity was forced loose from its joint on the external tuberosity and now occupies a higher position than normal, where it is still movable. There is a backward curvature to the reconstructed tibia, due, I think, to the same inability to control muscle action. There is still a small sinus leading down to necrosed bone, which I believe will be absorbed in time, without the necessity of further operation. Bismuth paste is being injected regularly and there is no suppuration.

The turning up of a bone-flap from the distal portion to fill the gap in the tibia was only the application of the well-known principles of the grafting of the soft tissues. I have no knowledge of a similar case.

I wish to acknowledge the excellent skiagraphs made for me by Dr. A. C. Simon.

NOTE.—At the time of correcting the proof (August 1) the patient is using the leg with no restrictions, and the remaining sinus has closed. The head of the fibula no longer shows abnormal mobility.

TRANSPLANTATION OF A PORTION OF THE TIBIA INTO THE SPINE FOR POTT'S DISEASE

A PRELIMINARY REPORT

FRED H. ALBEE, M.D.
Assistant Professor (Head of Department) of Orthopedic Surgery, Cornell University; Professor and Adjunct Professor of Orthopedic Surgery, University of Vermont, and Post-Graduate Medical School and Hospital, etc.
NEW YORK

The following is a final development, from a series of studies, on the application of osteoplasty in the treatment of Pott's disease of the spine.

I was induced to undertake this experimental work on the spine, on account of the excellent operative results obtained in tuberculosis of joints elsewhere in the body where bony union with its perfect support and immobilization has caused the tuberculous process to disappear so rapidly, although only a fractional part of the tuberculous tissues was removed. This has been especially exemplified in my ankylosing operation on the hip, when applied to tuberculous ostitis of that joint, and also in erasion of the knee under similar circumstances. The fact that it is only necessary to secure bony stiffening in tuberculous joints, by operation or otherwise, in order to get a rapid disappearance of the tuberculous process has been emphasized very strongly in the recent writings of Ely, both in his clinical and his pathologic studies. Previous to the herein reported cases, five patients were operated on and three or four spinous processes were split with a chisel or bone forceps for from 1 to 1⅓ inches from their tips, into equal halves, either through a plane approximately parallel with the long axis of the trunk or at right angle to it. The tip of the lower half of the superior vertebra was then brought into approximation with the tip of the superior half of the next lower vertebra after green-stick fractures of each and fastened with heavy kangaroo tendon. Chips of bone from the spinous processes were then placed in between so as to insure further bone union between these vertebræ. Mechanically this event (the union of spinous processes of neighboring vertebræ) acts in two ways: First, if we consider each vertebra a lever (as it properly is) with the fulcrum at the lateral processes, its short arm, the body of the vertebra and the long arm of the lever, the spinous process, then by causing a bony union of the posterior part of the lever, we shall prevent by leverage a crushing together or approximation of the bodies or the anterior arm of the lever.

Nature has done this, i. e., a fusing together of the posterior portions of the vertebræ involved, but unfortunately rarely, as pointed out by Brackett. This prevents absolutely any crushing of the bodies of the vertebræ and thus any further progress of the kyphosis or deformity. Secondly, and possibly not least, this formation of a bony bridge, connecting firmly the diseased vertebræ with the healthy ones on either side, acts directly as an internal splint on the vertebræ involved and furnishes more perfect support than any mechanical apparatus could possibly accomplish.

These assumptions are based, of course, on bony union of vertebra to vertebra as well as union of the green stick fractures of the vertebral halves.

This union has been satisfactory so far as can be ascertained, but on account of its uncertainty and the large amount of cartilage in the vertebræ of small children, with its slowness of union and early lack of support, it has seemed best to devise a procedure which would be possibly more reliable and also give support from the beginning. These requirements can be fulfilled in no other way except by a strong bone-graft.

The different sources from which to secure a strong bone-graft for an internal splint, which would give immediate support to the spine, were considered and the crest of the tibia was selected as by far the most desirable and accessible.

CASE 1.—*History.*—With this in view, R. C., a child aged 4, referred to me by Dr. E. H. Johnston, of Waterbury, Conn., was admitted to the Post-Graduate Hospital.

The past history was negative up to the time the trouble with the spine began. Several months before, the child had begun to have night "cries and sweats," and coincidently began to support herself with her hands on her knees. The mother thought that there had been a loss of weight and that the child was getting pale. There had been pain in the region of the stomach for the past two months. About three weeks before examination, the lump on the child's back was first noticed.

Examination.—This was negative except for a considerable kyphosis at the first and second lumbar vertebræ. The child stooped to pick up things from the floor with difficulty. The spine was rigid to passive and active motion in the region of the kyphosis.

Operation.—The patient was operated on June 9, 1911. Under ether, with the patient in the ventral position, an incision was made, directly over the tips of four spinous processes, with the kyphosis in the center. Each process was then split longitudinally for about one inch and a quarter into two portions with one-third of the process on the left and two-thirds on the right. The soft tissues between the processes were then merely separated by blunt dissection or by a *scalpel, parallel* with the muscles. Green-stick fractures were then produced at the base of the one-third portions of each of the processes. A wedge-shaped cavity was thus produced, ready to receive the bone graft. A compress of hot saline was then placed over the wound. The left leg which had been prepared for operation was then flexed on the thigh, so that an incision over the crest of the tibia anteriorly could be made. A prism-shaped piece of the tibia from its anterior-internal aspect was then removed by means of a chisel, with the periosteum intact on two of its surfaces. The graft taken was about 4 inches by 1 inch, by ½ inch. It was quickly removed and immediately placed in the interval between the portions of the spinous processes. The dense fascia over the tips of the processes was then approximated by interrupted sutures of No. 3 chromic catgut, thus holding the bone-graft very firmly in place. The skin was closed by a continuous suture of No. 1 plain catgut. The leg wound was treated in a similar way. The time of operation was fifteen minutes. There was no shock.

Result.—The child made a fine recovery from the anesthetic. The wounds healed by primary union. The child was discharged from the hospital July 17, 1911. The convalescence has been extremely satisfactory thus far. Muscular spasm of the spinal muscle has diminished very materially. However, it is obvious that it is too early to draw any definite conclusion concerning the final results of any of the cases herein reported, and this is a record of progress only.

Case 2.—*History.*—The patient, J. M. C., male, was a carpenter, aged 28. His family history was negative to tuberculosis. His present trouble began eight months ago with pain in his back which started in the lumbar region and shot into the thighs. He had night sweats all last winter, but no cough. There was a little pain in his right side when the patient walked and later there was pain in the left side also. There was a mass in the right groin for six months previous to the examination.

Examination.—This was negative except for moderate kyphosis involving the eleventh and twelfth dorsal vertebræ and the right psoas abscess, the size of a fist, just below Poupart's ligament. The spine was very rigid to all motion, both passive and active, in the lower dorsal and lumbar regions. The patient bent the spine with pain and difficulty.

Operation.—June 27, 1911, the Post-Graduate Hospital. Precisely the same operation was done as described in the previous case. The bone-graft from the tibia was much larger, however. It measured about 6 inches by 1⅛ inch by ½ inch. Both wounds healed by primary union. This case was discharged from the hospital July 15, 1911. The patient has gone back to work, wearing a Taylor spinal brace.

Case 3.—*History.*—The patient, W. D., was a boy aged 4½ years. His past history was negative except for measles and typhoid fever one and two years ago. He began to rest his chin in his hand eight months before examination. There was pain in the neck, which grew progressively worse, and which was complained of at about the same time. A lump on his back was noticed about six months ago.

Examination.—This was negative except for the spinal condition. There was a large angular kyphosis including the last cervical and first two dorsal vertebræ. There was a marked muscular spasm from passive motion. The patient bent with difficulty to pick things from the floor.

Operation.—July 14, 1911. Post-Graduate Hospital. This operation differed from the preceding ones only in reference to the bone-graft. On account of the angularity of the kyphosis, the bone-graft had to be molded into the segment of a circle in order that the corners would not project beyond the tips of the spinous processes distal from the kyphosis. The graft was about 4 inches by 1 inch by ⅜ inch, and included four spinous processes. Both wounds healed by primary union.

This patient is still on a modified Bradford frame. The convalescence has been very satisfactory thus far.

We have at present two cases on reversely bent Bradford frames for the purpose of securing a recession of the kyphosis before operating, and feel confident of holding the correction by the bone-graft.

SUMMARY

1. The inefficiency of present methods in the treatment of dorsal Pott's disease was tersely expressed by Schapps in 1905 as follows: "It is universally admitted that the forms [of portative apparatus] in general use and described in the standard text-books on orthopedics do not, even in the most skilled hands, control the deformity."

2. A firm bony splint with bony union to the vertebra involved and the healthy vertebræ on each side is supplied by this method, which assures not only the prevention of further deformity in two mechanical ways as stated above (leverage and splint action) but should also cause the immediate disappearance of the tuberculous process.

3. This method is believed to be preferable to any, where breaking or cutting of the spinous processes destroys entirely, or for the time being, until union takes place, the desired leverage of the spinous processes and their muscles and ligaments. Union is also uncertain where motion from breathing is present.

4. If bony union should not occur the same mechanical effects would still be largely obtained from the union of the internal bone splint to the ligamentous structures.

5. Perfect immobilization of the few involved vertebræ in the respiratory area of the spine is secured, which is a mechanical impossibility by means of any external apparatus, on account of the constant movement of the ribs, and the vertebræ attached.

6. Fortunately, on account of the anatomy of the part it is not necessary to enter the focus of disease; therefore primary union of soft tissues with immediate bone union can be expected.

7. The normal leverage action of the spinal muscles and the supporting ligaments on spinous processes is not interfered with.

8. The operation is by no means a formidable one. The technic is very simple.

9. When possible it is well to secure a recession of a kyphosis by long recumbency on a reversely bent Bradford frame. This method offers great promise of holding the correction obtained.

10. A bone-graft is far superior to an internal metal splint, because, by following Wolff's law it will become thicker and stronger if necessary to hold the weight or strain brought to bear on it, whereas in the case of an internal metal splint, suture or screw applied to the bone, no dependence can be placed on them to hold weight or strain, because of the bone atrophy and absorption which takes place directly around the metal. This occurs even when no strain is present.

I have found silver wire and screws which were placed through bone only a few months before, in the soft tissues where they had fallen through or out of the bone without being influenced by strain. For this reason and the always present danger of sepsis about buried metal, it would seem that bone-grafting will prove preferable to the internal metal spinal splint of Lange.

125 West Fifty-Eighth Street.

The Structure of Protoplasm.—We are generally agreed at present that it is inaccurate to speak of any one structure as common to all protoplasm, but many cytologists, among whom Bütschli, working chiefly on protozoa, was the first, believe that the different types are referable to one common generalized type which Bütschli described as alveolar in structure. A simple example of such modification of the alveolar into denser plasm can be easily demonstrated in the protruding pseudopodium of *Amœba proteus*.—Calkins in *Science*.

RESPIRATION VALVES

C. C. GUTHRIE, M.D.
PITTSBURGH, PA.

Some years ago I published a description[1] of an arrangement of valves for use especially in administering volatile anesthetics to animals in laboratory experimentation. The apparatus was designed primarily to avoid unnecessary waste of volatile anesthetics. An experiment with the first model constructed, in which an 8-kilo dog was employed, showed a saving of almost exactly one-half in ether when the valves were used, as compared to the amount used with the animal directly connected with the anesthetic bottle in the ordinary manner. This saving is due to the action of the valves in preventing air being forced through the bottle during expiration, thus displacing and carrying away ether vapor. And since expired air is warmer than inspired air under usual laboratory conditions, the increased vaporization due to raising the temperature of the liquid anesthetic is avoided. Furthermore, contamination of the anesthetic by condensation of water vapor is avoided. The valves require no adjustment or attention, as there is nothing that can get out of order. They have been used by the regular medical students in physiology and pharmacology at my laboratory for five years, and in no instance have they required any attention. One size suffices for half-grown cats as well as for large dogs, without any adjustment.

The apparatus commends itself for other reasons. For example, the audible but not noisy clicking of the valves furnishes a very reliable aural index as to the condition of the animal, and permits the closer concentration otherwise of the senses usually employed in constant observation of the condition of the animal. Or, if it is desired to collect the expired air for any purpose, this may be readily accomplished by connecting a suitable reservoir as a spirometer to the expiration tube. Owing to the desirable features enumerated, the valves are employed in all my operative work, connection with the dog or cat being made by means of an air-proofed hood or laryngeal tube (Figure 3).

The improved valves are shown in Figure 1; also, an additional valve of plunger type, which automatically regulates the entrance and escape of air from the lungs

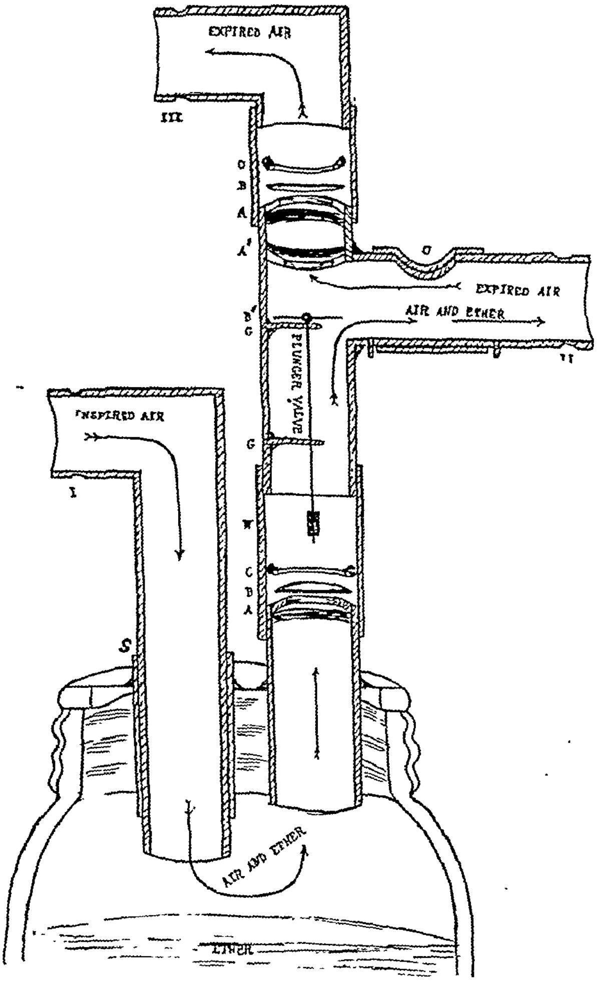

Fig. 1.—Respiration valves. I, entrance for air into anesthetic bottle. S, collar in which tube slides fo[illegible] at of ether. II, connection for laryngeal or [illegible] ming in tube and movable collar for adjust[illegible] air. III, outlet for expired air. By conne[illegible] the amount of expired air can be measure[illegible] with spirometer the expired air can be measured and collected for analysis. A marker may be connected with the spirometer and arranged to record on a moving surface the amount of expired air. A, valve seat; B, valve disk; C, valve stop; B', valve to close the opening at A' when artificial respiration is given by means of rhythmic or positive pressure through I; W, weight for regulating the action of valve in forced artificial respiration.

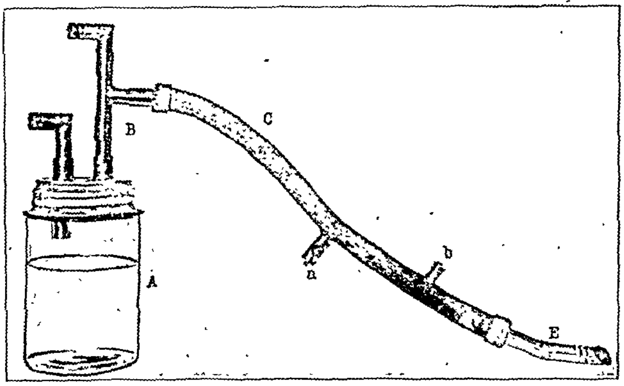

Fig. 2.—Anesthetic bottle, provided with respiration valves and connections.

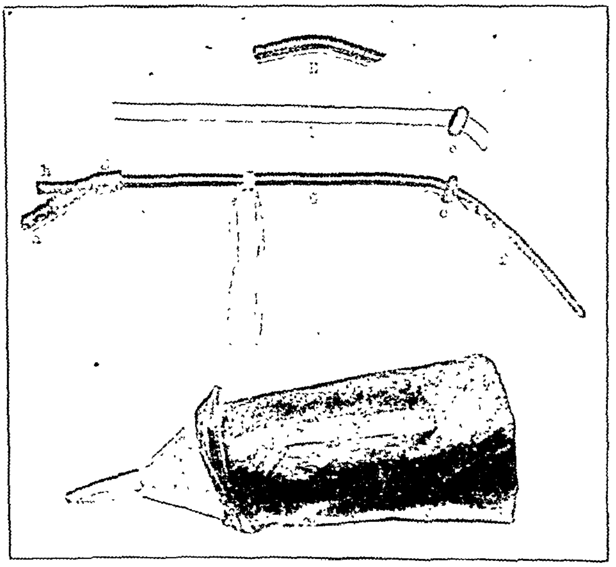

Fig. 3.—Attachments for administering anesthetics, for use with arrangements shown in Figure 2.

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1. Guthrie, C. C.: Respiration Valves, The Journal A. M. A., April 6, 1907, p. 1183.

in intermittent pulmonary insufflation, is shown. In thus using the apparatus, a small vent is opened at *O*, to insure prompt opening of the plunger valve. The valves may also be employed in administering anesthetics in continuous pulmonary insufflation.

Figure 2 shows ether bottle, *A*, and valves, *B*, with rubber tube, *C*, for connecting with hood, *D* (Fig. 3); tracheal tube, *E*; laryngeal tube, *F* (Fig. 3); and laryngeal tube, *G* (Fig. 3), for continuous pulmonary insufflation. The nipple, *a*, on the tube, *C*, is for regulating artificial respiration, when the tube is disconnected from the bottle and air is forced into the lungs by connecting the supply directly with the free end of the tube. The nipple, *b*, is used for connecting a tambour to record intratracheal pressure changes. Both nipples, *a* and *b*, are provided with movable caps by rotation of which the openings, *c* and *d*, are controlled. Construction details of the nipples are shown in Figure 4. The method of attaching the air-tight sleeve to the metal funnel, which forms part of the hood, may be seen by reference to Figure 3. The free margin of the hood is held in contact with the skin by means of thin rubber tissue cut in the form of a strip, an inch or two wide and of sufficient length to encircle the base of the head two or more times. It is applied snugly, but not too tightly, over the margin of the hood, and is conveniently fastened by means of a serrefine clamp. The tracheal tube, *E*, which is of ordinary form, is made of polished or plated metal or glass and is introduced and tied in place in the ordinary way. The laryngeal tube, *F*, is of polished or plated metal or of glass. The curved end is somewhat sloped and flattened and is provided with a thick, soft rubber collar, *e*. A heavy ligature about a foot long is tied around the tube with a single knot a little to the outer side of the middle, in such a manner that the free ends of the ligature are of about equal lengths. Narrow cloth tape serves well for this purpose. To insert the tube, the animal is rapidly anesthetized until the muscles relax, which requires from about thirty to ninety seconds. It is then placed on a table with the head toward the light and the end of a short stick of soft wood is inserted in the corner of the mouth between the molar teeth on one side, the jaws being widely opened for the purpose. The tongue is then grasped with a towel held in the left hand and pulled forward. This brings the epiglottis into view, and with the right hand the curved end of the tube is passed over the epiglottis and into the larynx, until the rubber collar presses against the tissues. The ligature around the tube is then tied firmly about the lower jaw to hold the tube in place. After securing the ligature about the lower jaw and removing the stick from the mouth, the ends may be brought about both jaws and tied on the upper surface of the nose in front of the eyes.

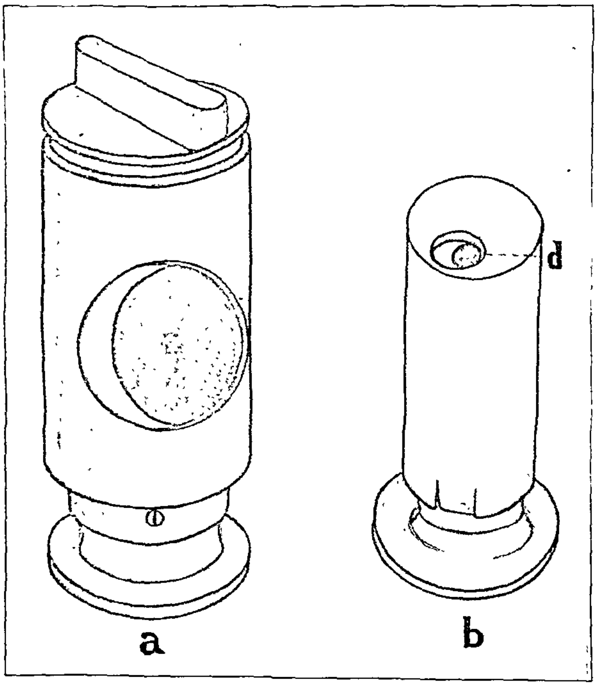

Fig. 4.—Enlarged drawing showing construction details of nipples inserted in tube shown in Figure 2.

The outer tube of the laryngeal tube, *G*, for continuous pulmonary insufflation, is of the same construction as the tube just described, and is inserted in the same manner. The inner tube, *f*, is flexible and of sufficient length to reach from the lips to the bifurcation of the trachea. It loosely fits the outer tube which it enters through a hole in the rubber sleeve, *g*, which it fits snugly. The outer end, *h*, may be provided with a glass or metal tube connector, for convenience in attaching to the compressed air supply. The free end of the rubber sleeve, *g*, is provided with a screw clip or other device such as nipple, *a*, Figure 4, for regulating the amount of outgoing air. The rubber sleeve which is disconnected from the end of the outer tube is removed along with the inner tube, before the outer tube is inserted. After the latter is tied in place, the inner tube is pushed through the lumen of the outer tube and secured in place by connecting the rubber sleeve with the end of the outer tube. The position of the end of the inner tube in the trachea is regulated by sliding it in the hole in the sleeve which it penetrates.

EXCISION OF PARIETAL PORTION OF TUNICA VAGINALIS FOR RELIEF OF PAINFUL TESTICLE FOLLOWING GONORRHEAL INFLAMMATION

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Patient.—A soldier, aged 25, stationed at Fort Porter, N. Y., previous history unimportant, had gonorrhea with swelling of left testicle six months previously. The swelling subsided and at time seen, the patient had only a slight mucoid discharge, noticeable in the morning, but complained of painful left testicle.

Examination.—Urine had shreds in the third glass. No stricture. Prostate on palpation was normal; right testicle normal; left testicle not swollen, but very painful and tender on palpation. Any effort to determine outlines of epididymis and first portion of vas caused so much pain that it could not be done.

Treatment and Course of Disease.—It was thought that the lumen of the globus minor was constricted, and the testicle was explored with the idea of excising this portion, and anastomosing the vas with the globus major. But when exposed the epididymis and vas were found normal. Attention was then directed to the testis. Here it was found that the cavity of tunica vaginalis was entirely obliterated; the parietal was entirely adherent to visceral layer by firm dense adhesions and was much thickened. This was dissected off and excised entirely. The testicle was returned to the scrotum and the wound closed with a small drain. Following operation, the tes ticle was swollen for a short time. This soon went down and in ten days healing was complete. Patient was up at this time; symptoms had entirely disappeared. He returned to work two weeks after operation, doing general work around the stable. Hexamethylenamin (urotropin) was given for the urethral condition. The patient was seen six months after operation. The testicle was apparently normal on palpation—no tenderness—no atrophy. Patient rides daily without discomfort—has no symptoms, though this exercise caused much pain before operation.

A casual search through the literature reveals no report of a similar case. The operative treatment of acute epididymitis of course has been mentioned frequently, but none of the authors has discussed this phase of the subject. Painful testicle following gonorrheal orchitis does occur, the patients often becoming neurotic and frequently returning without sufficient signs to explain their symptoms. Adhesions of the peritoneum following inflammatory processes frequently cause pain. The tunica is peritoneum also, and well supplied with nerves. Following an infection of this character, adhesions with pain might be explained on the same basis. This explanation is offered merely as a suggestion.

This case was presented to the Section in Surgery at the Buffalo Academy of Medicine in January, 1911. I wish to acknowledge the courtesy of Captain R. Davis, of the Medical Corps of the Army.

127 Allen Street.

ENDEMIC MALTA (MEDITERRANEAN) FEVER IN TEXAS WITH THE ISOLATION OF THE MICROCOCCUS MELITENSIS FROM TWO PATIENTS

SECOND PAPER

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[WASHINGTON, D. C.]

In 1905, Captain Charles F. Craig,[1] Medical Corps, U. S. Army, reported a case of Malta fever which had originated in the United States. The patient was a nurse in a hospital in Washington, D. C., where she contracted the disease, probably from nursing infected soldiers. In addition he reported nine cases in United States soldiers, who had become infected in the Philippine Islands. From the introduction to this communication by Captain Craig we quote the following remark:

> I am convinced that a careful study by use of the Widal test and the agglutination reaction with *Micrococcus melitensis*, of many of the cases of obscure continued fevers which are prevalent in this country, will result in the demonstration that Malta fever is by no means a rare disease in the warmer portions of the United States, and that many of the so-called anomalous cases of typhoid fever are, in reality, instances of infection with the organism of Malta fever.

During June, 1911, while stationed at Camp U. S. Troops, Del Rio, Texas, one of us (Lieutenant Thomas L. Ferenbaugh, Medical Corps, U. S. Army), had the opportunity of observing five cases of continued fever occurring in the practice of Drs. R. M. Scott and S. L. Boren of Del Rio, and after making agglutination tests, reported these as cases of Malta fever.[2]

Following the report of these findings to the Surgeon-General of the Army and the confirmation of the agglutination test in the bacteriologic laboratories of the Army Medical School, we were ordered to Texas with a field laboratory to determine, if possible, the identity and extent of this fever. The field laboratory was first located at Langtry, Texas, owing to the fact that four of the patients had been infected near that place, and it was desired to investigate more fully and confirm the earlier work of Dr. Ferenbaugh on these cases.

Shortly after arrival at Langtry, two of the patients previously seen entered on a relapse. This report is based on a laboratory and clinical study of these cases during this relapse.

July 21, patient, C. E. (Case 1 already reported) entered on his third relapse, with a temperature of 104 F. and with the same symptoms as during the previous attack.

On the evening of July 21, a blood-culture was made; 0.5 c.c. of blood was inoculated into each of two sterile broth and litmus milk tubes, each containing 10 c.c. of medium. After incubation at 37 C. for three days the cultures were plated out on glucose-nutrose-litmus-agar and the plates incubated for three days at 37 C. At the end of forty-eight hours about twenty very small, discrete, transparent, circular colonies had appeared on each of two plates, which were later completely identified as the *Micrococcus melitensis*.

July 23 a second blood-culture was made, and the blood inoculated into flasks of sterile broth. After four days incubation the cultures were plated out on glucose-nutrose-litmus-agar with the following results:

Quantity of Blood, c.c.	Amount of Broth, c.c.	Results ......
2.	50.	Pure culture of *M. melitensis*
.3	10.	Sterile
.3	10.	*M. melitensis*
.3	10.	Sterile

One-tenth c.c. of blood was inoculated directly on to the surface of each of two glucose-nutrose-litmus-agar plates with a sterile L-shaped glass spreader and incubated three days at 37 C. Both of these plates were sterile.

BLOOD-EXAMINATION JULY 23

Red blood-cells	4,200,000
White blood-cells	6,500
Hemoglobin	75 per cent.

Differential count, per cent (500 cells):

Polymorphonuclear neutrophils	45
Small mononuclears	47.4
Large mononuclears	6.4
Transitionals	1.2
Eosinophils	0
Mastzellen	0
Nucleated reds	0
Parasites	0

The temperature returned to normal July 28. The patient at the time of this report had been working at the goat camp for the previous two weeks and had suffered no further relapse. On July 29 0.75 c.c. of a centrifugalized specimen of urine was plated out on each of two glucose-nutrose-litmus-agar plates. After four days incubation the plates proved negative for *M. melitensis*. Chemical and microscopic examinations of the urine were negative.

CASE 6.—M. E., Langtry, Texas, aged 26, goat herder, brother of the four patients previously seen in Del Rio by Dr. Ferenbaugh. The patient had been working at the goat camp for three months before the onset of the sickness, and had been drinking goat's milk at the camp. He became ill June 14, 1911, with headache and pain in the back of the neck; ached all over; no definite chill; profuse sweating, especially at night; complained a great deal of eyes smarting; appetite fairly good, bowels constipated. The patient did not go to bed during the first attack of fever, but stopped work. The fever ran a mild course and returned to normal June 24. Temperature remained normal until July 19, when fever again returned. When seen at the Army laboratory at Langtry,

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1. Craig: Internat. Clin., 1905, 89.
2. Ferenbaugh, T. L.: Endemic Mediterranean Fever (Malta Fever) in Southwest Texas, THE JOURNAL A. M. A., Aug. 26, 1911, p. 730.

July 21, the patient had a temperature of 102.5 F., and complained of headache, loss of appetite, pains in joints, weakness, profuse sweating at night and insomnia.

July 23 a blood-culture was made, and 4 c.c. of blood inoculated into a flask containing 60 c.c. of sterile broth. After incubation for two days the culture was found to be contaminated with a rapidly growing acid-producing coccus, and although the culture was plated out repeatedly on glucose-nutrose-litmus-agar no colonies resembling the *M. melitensis* could be found.

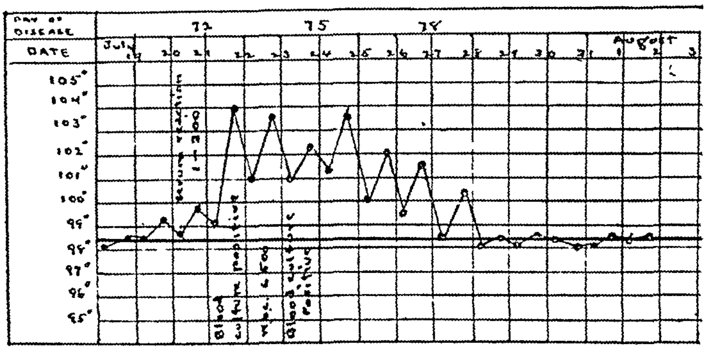

Fig. 1.—Chart showing temperature curve, blood-count and results of blood-culture in third relapse in Case 1 (C. E.).

July 29 a second blood-culture was made. The temperature at the time was 101.8 F. The blood was inoculated into flasks of sterile broth, which were incubated for four days and then plated out on glucose-nutrose-litmus-agar with the following results after three days incubation:

Quantity of Blood, c.c.	Amount of Broth, c.c.	Results ......
1.	100.	Pure culture *M. melitensis*
0.5	100	Pure culture *M. melitensis*
0.5	100.	Contaminated

Four-tenths of a cubic centimeter of blood was inoculated on to the surface of a glucose-nutrose-litmus-agar plate with a sterile L-shaped glass spreader. After two days incubation about twenty colonies of *M. melitensis* appeared on the plate.

Blood-serum on July 28 gave the following agglutination tests:

M. melitensis 1-80 dilution, positive in one hour.
Normal control 1-50, negative in one hour.
Bacillus typhosus, 1-50, negative in one hour.

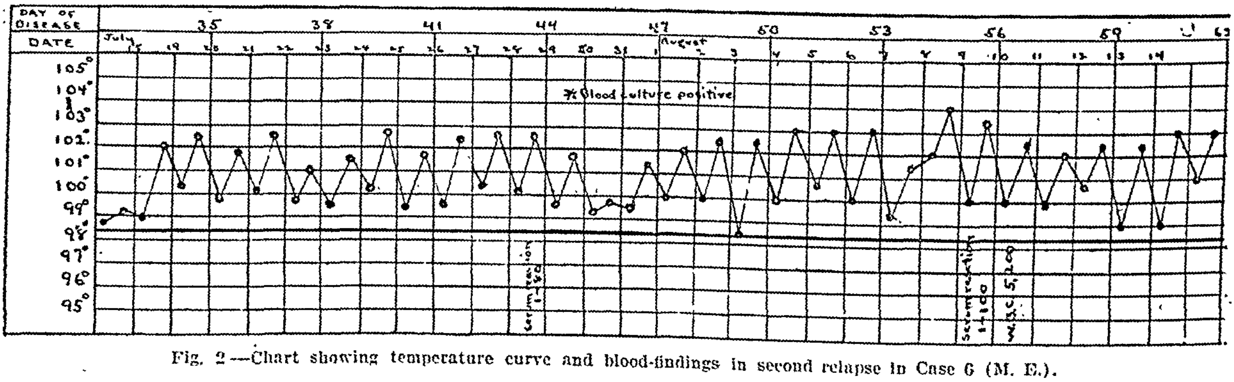

Fig. 2—Chart showing temperature curve and blood-findings in second relapse in Case 6 (M. E.).

BLOOD-EXAMINATION, AUGUST 9

Red blood-cells	4,390,000
White blood-cells	5,200
Hemoglobin	75 per cent.

Differential count, per cent. (500 cells):

Polymorphonuclear neutrophils	46.
Small mononuclears	47.
Large mononuclears	5.6
Transitionals	0.8
Eosinophils	0.4
Mastzellen	0.2
Nucleated reds	0
Parasites	0

Agglutination tests August 9 resulted as follows:

M. melitensis, 1-50 dilution, positive in 10 minutes.
1-100 dilution, positive in 30 minutes.
1-300 dilution, negative in 1 hour.
Normal control 1-50, negative in one hour.
Bacillus typhosus 1-50, negative in one hour.

The urine was repeatedly plated out on glucose-nutrose-litmus-agar, but was negative in each instance for *M. melitensis*. Chemical and microscopic examinations of urine were negative.

August 14, the patient was still very ill, the fever ranging from 100-102.5 F. daily. The patient complained of headache, profuse sweating, loss of appetite, pains in the joints and obstinate constipation. Physical examination showed enlarged liver and spleen with some tenderness over both. Abdomen slightly distended and some rigidity of the abdominal muscles was present; otherwise physical examination was negative.

Agglutination tests in the above cases were made both microscopically and macroscopically. Both methods gave identical results.

METHODS USED IN THE ISOLATION AND IDENTIFICATION OF THE MICROCOCCUS MELITENSIS

The organism was isolated by means of blood-cultures, which were made in two ways:

1. The ordinary method of drawing blood with a syringe from a vein in the elbow.
2. By the sterile capillary tube method of Zammit,[3] the blood being taken from the ear.

Both methods give good results. The Zammit method is especially useful in Malta (Mediterranean) fever, since the organism is present in small quantities of blood during the fever stage. Zammit isolated it from as small a quantity as 0.005 c.c. It is also valuable in field laboratory work where patients often refuse to permit the taking of blood from a vein.

Media.—Sterile broth in flasks, reaction + 1, was used as a preliminary enriching medium. The medium used for the isolation of the organism was a glucose-nutrose-litmus-agar[4] containing 1 per cent. each of glucose and nutrose and standardized to a reaction of + 1. The experimental work of Major Horrocks,[5] R.A.M.C., of the British Mediterranean Fever Commission, has shown that the addition of 1 per cent. nutrose to agar or broth greatly accelerates the growth of *M. melitensis* and also since the organism does not ferment glucose, the addition of this sugar tinted with litmus is of great service in isolating the organism from a mixed culture.

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[3] Zammit: Reports of British Commission on Mediterranean Fever, Part 1, Article 6.

[4] Kolle and Hetsch: Die Experimentelle Bakteriologie und die Infektions-Krankheiten, Edition 2, Kultursmethoden.

[5] Horrocks: Reports of British Commission on Mediterranean Fever, Part 1, Article 1.

In obtaining the blood, strict aseptic precautions were observed in every case to avoid contamination. From 2 to 4 c.c. of blood were taken and inoculated into the broth-enriching medium in the proportion of one part of blood to not less than thirty parts of broth. The broth cultures were then incubated at 37 C. for four days.

In plating out these cultures, the liquefied glucose-nutrose-litmus-agar was poured into sterile Petri dishes and allowed to cool until the surface was well hardened. Several drops of the broth culture were then deposited near the center of the plate with a sterile pipette and then distributed over the surface of the medium with a sterile L-shaped glass spreader. Plates were then incubated for three days at 37 C.

After forty-eight hours' incubation there appeared, on the positive plates, a considerable number of small, round, transparent, colonies with a yellowish tinge and slightly granular center and presenting a typical "dew-drop" appearance by transmitted light. The colonies produced no fermentation of the medium and remained blue even after two weeks' growth.

The colonies were fished and the organism found to possess the following characteristics:

Morphology.—A small coccus, non-motile, emulsifies readily in hanging drop and exhibits the characteristic Brownian activity. It does not stain by Gram.

Cultures.—Growth on agar slants appears after three days incubation as small transparent colonies along the line of inoculation. In litmus milk after four days the milk becomes markedly alkaline without change in consistency of the medium. No fermentation in glucose.

Agglutination Tests.—Agglutinates readily with a specific immune serum at dilution of 1-1,000 in one hour.

Agglutinates readily with patient's serum at dilution of 1-200, in thirty minutes.

According to Major Horrocks,[6] "a microorganism which agglutinates with a specific animal serum in a high dilution, does not ferment glucose, renders milk alkaline without coagulation, may be justly regarded as the *M. melitensis.*"

The organism which we have isolated from these two cases of continued fever conforms to the foregoing criteria in every respect.

CONCLUSION

Endemic Malta fever exists in Texas at the present time.

We desire to thank Brigadier General George H. Torney, Surgeon General of the Army, for extending to us the opportunity for studying the identity and distribution of this disease. We also desire to thank Major F. F. Russell, Medical Corps, U. S. Army, and Captain Charles F. Craig, Medical Corps, U. S. Army, for much valuable advice and assistance.

Belladonna in Epilepsy.—The use of belladonna in epilepsy dates from the seventeenth century. It was recommended by Mardorf, in 1891, and later was a favorite remedy of Trousseau. Since the advent of bromid its use has become less general. It is of most avail in cases of *petit mal* and those complicated with nocturnal incontinence. The best results are obtained where it is given in conjunction with the bromids. The best preparation is the tincture in doses of from 5 to 10 minims.—E. L. Hunt in *Medical Record.*

THE CONTROL OF TYPHOID FEVER [*]

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AND
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Typhoid fever is an acute, infectious and contagious disease occurring in man, and is caused by *Bacillus typhosus*. The typhoid bacillus depends for its perpetuation on multiplication in the body of man. The organism leaves the human body in the discharges from the bladder and bowel. All methods of control of typhoid fever must rest on the proper disposal of this material. If human excreta are prevented from reaching human mouths, typhoid fever will be entirely prevented.

In the United States, typhoid fever causes approximately 35,000 deaths, and incapacitates about 450,000 persons each year at their period of maximum earning capacity, thus causing an estimated economic loss of $150,000,000. The disease prevails practically throughout the United States. The application of the measures necessary for the control of typhoid is of paramount importance, not only on account of the large number of cases and deaths and the enormous economic loss resulting therefrom, but also because of the fact that these same measures will control a number of other diseases such as hookworm disease and diarrheas and dysenteries, and will render impossible the spread of Asiatic cholera.

THE TYPHOID ORGANISM

The typhoid organism is a motile bacillus, growing well on practically all laboratory media. Its resistance to heat, light and chemical agents is relatively low. Its normal abode is the human body, but under certain circumstances its life outside the body, as in water, sewage, soil polluted with human excreta, butter, or in shellfish may be prolonged for weeks or even months. Usually, however, its life outside the body is short. It resists drying as in dust or on clothing for considerable periods of time. The multiplication of the organism outside the human body takes place only under exceptional circumstances, and is not an important factor in the spread of the disease, except in connection with milk.

SOURCE OF THE INFECTION

The sources of the infectious material are the discharges from the human body. These may be from recognizable cases of the disease, from persons in the incubative or ambulant stages of the disease, from convalescents, or from the so-called chronic typhoid carriers. While the discharges from the bladder and bowel constitute the major portion of the infectious material, other secretions such as the tears, sweat, saliva or bronchial secretion of the patients may contain the organism. It also occurs occasionally in the pus from post-typhoid cold abscesses, and in the mammary secretion.

METHODS OF SPREAD

The usual portal of entry of the typhoid bacillus is the mouth. It reaches the mouth in food and drink, from infected fingers, possibly by infected dust, or by any other material infected with the specific organism.

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[6] Horrocks: Reports of British Commission on Mediterranean Fever, Part 1, Article 3

[*] Report of the Committee on Typhoid Fever to the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Second Annual Meeting, held at Los Angeles, June, 1911.

EPIDEMIC TYPHOID

While anything soiled with human excreta may act as a vehicle for transporting the infection from its source to the victim, water, milk or other foodstuffs are usually the vehicles in sudden epidemics or outbreaks of the disease.

Small streams or bodies of water usually not polluted may receive a relatively large amount of infectious material at one time, from a case or cases on the watershed, and may give rise to an extensive explosive outbreak. Streams or bodies of water usually more or less polluted with sewage may, by reason of changes in the conditions affecting the viability of the typhoid bacillus, or in the amount of infection they receive, become so heavily infected as to give rise to a sudden outbreak.

Wells and springs used by large groups of persons may become infected from seepage or from direct introduction of the infectious material, and thus give rise to an epidemic, more or less localized in character. Water in aqueducts, conduits or water mains may become infected through leakage.

Milk is a common vehicle for typhoid infection. The organism multiplies readily in milk. The milk may be infected by hands or flies soiled with human excrement, by being mixed with infected water, by the use of utensils which have been washed in infected water, or by being placed in infected bottles or other vessels.

Fresh vegetables, infected with human excrement used as a fertilizer, shellfish grown or "floated" in polluted water, or any food touched with hands soiled with human excrement, or placed in containers soiled with human excrement may give rise to epidemic typhoid.

ENDEMIC TYPHOID

In certain communities typhoid fever is continuously present. In such instances the infectious material may be *exogenous* or originating outside the community and be brought into it by a heavily polluted water-supply, milk or other foods more or less constantly infected. Even when the infection is not introduced from without in this way, a community may suffer from a continuously high typhoid rate due to *endogenous* infection or infection originating within the community itself. This type of typhoid has been called residual or prosodemic typhoid. Many factors contribute to the spread of endogenous typhoid fever. All depend on failure to exercise proper care in the disposal of human excrement within the limits of the community affected. These factors are: contact; surface wells and springs in the area affected; failure to diagnose, report and properly supervise cases of typhoid; improper handling of milk and foodstuffs; and the exposure of human excreta so that it may be scattered by flies or by other means.

The spread of typhoid fever depends on the same general factors in both rural and urban communities. In rural districts, the factors of water, milk and other foods are not so potent, as products of this kind from one source do not usually reach large groups of persons. Factors depending on flies, contact and similar means, on the contrary, are even more potent in the spread of typhoid in rural districts by reason of the almost universal use of the open surface privy.

INVESTIGATION OF TYPHOID FEVER

The investigation of the causation of typhoid fever necessitates a careful study into all the factors concerned in its spread. The investigator should be able to diagnose the disease, be acquainted with the methods of investigation, and have sufficient experience to interpret his findings.

Preliminary to investigation, all known cases, including abortive and mild cases of the disease, should be located. The diagnosis of a sufficient number of cases to determine the character of the disease should be made at the outset. Death certificates and reported cases should be tabulated and all cases reported by physicians as enteric fever, slow fever, fever, abdominal fever, typho-malaria, winter cholera, bloody flux, diarrhea, continued fever, malaria, nervous fever, or any febrile or intestinal complaint should be regarded as suspicious of typhoid until another diagnosis has been established.

In addition to the cases reported from physicians, other persons should be questioned as to suspicious cases occurring in their neighborhood and cases reported in this way should be promptly investigated. Records of hospitals in the community should also be examined.

As soon as the diagnosis is established and the cases collected, they should be investigated one by one. As far as possible each house in which a case has occurred should be visited and all information bearing on the case collected there. In order to secure accuracy, completeness and uniformity, it is desirable that some form of blank be used for the collection of this data. The blank should cover the following facts regarding the case: name, residence, color, sex, age, date the person took to bed, date of first symptoms, civil condition, school attended, church and Sunday school attended, occupation, how long at present residence, absences from home during month preceding illness, source of water used for drinking at home, at place of business, and water other than that of public supply drunk away from home during preceding month, source of milk used at home, other milk drunk, restaurants where patient has eaten during the month preceding, ice-cream eaten and its source, fresh vegetables and shellfish and their source, source of ice used at home, name of physician, exposure to other cases, cases in house previous to this, cases in neighborhood, cases at school or at place of business, etc., names of servants employed and residences of each, visitors at residence during month, general sanitary condition of premises, condition of well or spring, if any, condition of privy, if any, and screening against flies, condition as to isolation of cases and disinfection of discharges, screening of patient against flies, presence or absence of trained nurse.

Before any conclusion is drawn as to common sources of infection, all information collected about cases should be tabulated in convenient form so that all factors concerned may be seen together. A convenient method is to place the names or numbers of the cases in a vertical column at the left side of the sheet, other vertical columns being ruled for the various factors involved. The information regarding any one case is thus in a horizontal line, while the information regarding any one factor such as milk, contact, etc., is in the vertical column. A separate sheet should be ruled for the milk-dealers, their names being in the vertical column to the left; other vertical columns should be ruled, one for each day of the epidemic. Cases can then be spotted against the milkman on the day of their occurrence. All tabulations should be made in reference to the day on which the patient takes to bed. The cases should be plotted by days, giving the chronologic curve of the outbreak. If a map of the community is available or if one can be made, the cases should be spotted on it according to the point of origin. Spots or tacks of different colors may be used on this map to indicate different facts regarding the cases.

A study of the charts and maps so prepared may direct the investigators' attention to some factor or factors, as being most probably responsible for the spread of the disease. Certain factors can usually be eliminated as a result of this preliminary study. Attention should then be focused on those factors which, apparently, might be responsible. All clues and leads should be followed up until all information bearing on them has been collected. The investigator should retain an open mind throughout the study and should always remember that other minor factors may contribute to the spread of the disease within limits, even though the great bulk of the cases may be caused by some great general factor.

WATER OUTBREAKS

In order to direct intelligently the field investigation which must be taken up after the cases have been inspected, the investigator should recognize the general features of epidemics due to different causes. If the preliminary study shows all or practically all the patients to have used habitually any common supply of water, investigation of the conditions surrounding the water-supply should be made at once. In a sudden outbreak, especially during the winter months, in a community previously practically free from the disease, unless there is strong evidence that milk is responsible, water should be assumed to be the cause of the outbreak until proved otherwise. In all instances in which the users of any common water-supply seem to suffer more severely than others, suspicion should be attached to the water.

A sanitary survey of the water-supply should be instituted at once in all such instances. On small watersheds, the entire area should be gone over as thoroughly as possible to find any existing points of obvious pollution, and to locate actual cases of the disease which may have furnished the infectious material. Where larger streams are used, all sewage outfalls should be located, the intake for the water-supply examined, and all information possible regarding pollution further up stream collected. Currents, ice, freshets and other factors of flow should be determined. In communities using water from ponds and lakes, points of pollution along the shore should be determined, sewer outfalls located, and currents and prevailing winds should be taken into consideration. Where wells or springs are used they should be carefully inspected and nearby points of pollution, sewer lines in the neighborhood or local pollution about the mouth of the well or spring should be determined. All geologic facts bearing on the supply of such springs and lakes should be collected and considered. Pumping stations, filter-plants, storage reservoirs and all parts of the distributing system should be examined as completely as possible. Breakdowns, overflows, shortage, supplementary supplies, and emergency systems for fire protection should be determined and recorded.

While sanitary inspections usually give the most important information about the pollution of a water-supply, valuable additional information may be obtained in many instances from the results of careful chemical and bacteriologic work. Whenever possible, samples should be collected and examined at every stage in the passage of the water from its source to the consumer. Vended water-supplies in use in the community should be inspected and examined in the same way as public supplies, if there is any suspicion of their being responsible for the outbreak.

MILK OUTBREAKS

Indications pointing to typhoid infection from milk usually appear early in the investigation. The fulminant character of the outbreak in which the maximum number of cases per day appears almost immediately, the distribution in certain sections of the community, and the high incidence of the infection among users of milk usually give the investigator a clue. The first step in the investigation of evidence should be the tabulation of all milk-dealers supplying the community, with the approximate number of gallons per day distributed by each. Those dealers showing a disproportionately large number of cases should be investigated first. Every step in the course of the milk from the cow to the consumer should be scrutinized. In instances in which the dealer handles milk from only a few farms, this is relatively a simple matter, involving a trip to the dairy and dairy farms, the inspection of all employees, collection of information as to the health of all employees and to their association with the sick, particularly those recently employed, discharged or leaving on account of illness, also an inspection of water-supplies used for cooling or cleaning of utensils or cans. The methods of transportation, possibility of infection during transportation, the city milk depot, its employees, methods, equipment and water-supplies, and lastly the driver of the individual wagon and the methods of vending must be taken into account. Bottling and the possibility of infection from bottles coming from houses in which the disease exists should be considered. In investigations of the possibility of infection of milk by handling, bacillus-carriers should be constantly kept in mind.

OTHER FOODS

The determination of the influence of foods other than milk in the transmission of typhoid is usually a matter of great difficulty. Other factors should be eliminated as completely as possible before attention is focused on this point. In instances in which fulminant outbreaks of typhoid fever occur among those who have partaken of certain articles of diet in common, each item of the menu should be traced to its source, and all persons concerned in the vending, preparation and serving of the various articles of food subjected to careful examination as to their sanitary history. In addition it should be determined exactly what articles on the menu were eaten by each person affected. In this way the infected article may be incriminated. Chemical or bacteriologic examination of food remaining from the meal, or of like articles of food from the same source as those suspected, may furnish additional evidence. The present methods of isolating typhoid bacilli from foodstuffs are difficult and uncertain. Furthermore, infection of foodstuffs is often transitory, occurring at intervals, and the life of the typhoid bacillus in most foods is so short that it may not survive for the time elapsing between the infection and investigation. For these reasons failure to recover the organisms should not negative strong epidemiologic evidence.

SPREAD FROM ENDOGENOUS INFECTION

When the introduction of exogenous infection through water, milk, or other foods is eliminated from the problem, other factors must be considered. The determination in any community of the means of spread of typhoid fever arising from sources within the community itself is, as a rule, a matter of great difficulty. Many factors varying in degree of their operation are involved. In addition to direct personal contact with the case of typhoid, indirect contacts, varying in degree and often devious and obscure in their course, undoubtedly contribute to the spread of the infection. Any foodstuff or any material handled by human beings so as to become soiled to the slightest extent with human excreta may act as a link in the chain of indirect contact. Hands so soiled may serve to infect bread, fruit, milk or other foods which may in turn carry the infection to an indiviual or a number of persons. Flies which have had access to infectious material may act as distributing agents. Surface wells and springs locally polluted may give rise to few or many cases of the disease among the persons using them.

Due to the multiplicity and complexity of the factors concerned in the spread of typhoid fever from endogenous infection, a study of cases resulting from such infection seldom presents the characteristic and striking features presented by a study of cases from exogenous infection. A careful study of all cases in the community under consideration is always necessary. In some instances this study must be prolonged over a considerable period before reasonably definite conclusions can be reached. In addition to study of individual cases, and such studies of the water, milk and other food-supplies as are necessary to eliminate them as vehicles for the transportation of infection, the general features of the disease in the community should be given careful consideration. The facts regarding the prevalence of the disease for as long a period of years as accurate statistics are available, should be carefully compiled, charted and studied. The number of cases and deaths for each month of the years for which records are available, should be charted, and the average morbidity and mortality rates for each month should also be charted.

A chart showing the relation between the average monthly death-rate and the average monthly mean temperature for the same period of years should be prepared. In communities in which typhoid fever is due largely to endogenous infection, the typhoid curve follows closely the temperature curve, taking into account the time elapsing between the infection and the death of the patient. For communities using a heavily polluted water, peaks in the typhoid curve during the winter and spring months are frequently higher than the crest of the summer curve.

A strikingly seasonal (summer) prevalence of typhoid fever in a community should not be taken, however, as a positive indication that the disease is due entirely, or even for the greater part, to endogenous infection; because coincident with the warm summer weather there may be an increase in the number of cases in the surrounding country, with a consequent increase in the amount of exogenous infection introduced through foodstuffs which have become infected at their farm sources.

The geographic distribution of the cases in the community is sometimes of significance. There may be a well-marked tendency toward concentration of cases in and around insanitary areas. It should be borne in mind, however, that even when the disease is due almost entirely to endogenous infection it may be generally distributed over a large community.

The chronologic distribution is frequently suggestive. Scattered cases appear at intervals, gradually increasing in number and reaching a maximum usually toward the end of the hot season, then declining slowly to the winter normal. This is usually in striking contrast to the sudden explosive character of an exogenous outbreak.

If the sanitary survey of the community reveals the existence of a large number of open privies or of other insanitary practices giving rise to wide-spread excretal contamination, it may be assumed that typhoid fever is spread as a result, and the finding of such conditions constitutes important corroborative evidence of endogenous infection.

A conclusion that typhoid fever in any community is due largely to either endogenous or exogenous infection should be drawn only after an exhaustive study of all the facts available. In practically every community in which typhoid fever prevails both types of infection are operative, their relative proportions varying from time to time. Measures for the restriction of typhoid fever in any community must therefore comprehend all factors concerned in the distribution of both endogenous and exogenous infection.

THE PREVENTION OF TYPHOID FEVER

While means for the prevention of typhoid fever vary according to local and other conditions, certain fundamental procedures are necessary in every case.

An adequate supply of water of good sanitary quality for domestic use is, of course, absolutely necessary. The work of furnishing such a supply is usually left to engineers, but sanitary considerations in connection with any supply should be paramount. Under emergency conditions, a water-supply, even if known to be polluted, may be rendered safe for use by disinfection with hypochlorite of lime. Supplies obtained under conditions indicating pollution and used without filtration should be furnished with auxiliary plants for the addition of hypochlorite of lime to the water. Where public supplies are not available, as in small towns and rural districts, all wells and springs should be supervised to secure such construction and care as will prevent pollution.

An adequate sewerage system, reaching every part of the community, should be constructed whenever possible, and every closet should be connected with it. Soil pollution should be prohibited under penalty. Where water carriage of sewage is impossible, all privies should be built and kept strictly in accordance with sanitary principles; to retain the excrement in a water-tight receptacle, screened against flies, until it is removed under official supervision. When possible, the material from the privies should be cremated. When this is impossible, it should be mixed with a disinfectant solution and buried as far from human habitations and important watercourses as possible. It should never be used for fertilizer on any garden or truck farm.

Milk production should be under constant and rigid supervision. All dairies and milk depots should be frequently inspected, the greatest possible degree of cleanliness should be insisted on, and all cases of sickness on a dairy farm should be promptly reported to the health authority and immediately investigated. When indications point to infection of any milk-supply, the consumer, rather than the producer, should always be given the benefit of the doubt. No large milk-supply can be regarded as safe, in view of the likelihood of frequent accidental infection, unless subjected to efficient pasteurization under official supervision.

Accurate supervision of all cases is of the greatest importance. This should include visitation of every case as soon as reported, with collection of epidemiologic data, instruction of the family as to necessary precautions, particularly in regard to disinfection, free supply of disinfectants to the poor, provision for screening of all cases against flies, and revisitation as often as necessary to secure proper care of each case. The visiting nurse is of great value in this work.

Provision should be made for prompt diagnosis of all suspicious cases by laboratory methods. The blood-culture is recommended for this purpose.

Fly prevention by removal of filth and garbage and legal control of stables, requiring screening of manure pits and weekly removal of manure should be practiced.

Garden truck and fruits should be protected as far as possible by screening against flies, and cleanliness in all shops and other places where human food is stored or handled should be required. The use of human manure for fertilizer on truck gardens should be absolutely prohibited. Restaurants, soda fountains and ice-cream factories and depots should be frequently inspected and cleanliness required.

Popular education regarding the nature, cause and means of spread of typhoid fever, particularly with reference to spread by contact with the case and by fecal contamination, should be carried on until every citizen is acquainted with the facts about the disease.

In rural districts the construction and maintenance of a sanitary privy on every farm, the total abolition of the surface privy, the proper construction and care of wells and springs, and the education of the people as to the contagiousness and necessary means for preventing the spread of the disease are the essential measures. Education is the first essential.

Vaccination against typhoid fever by inoculations with killed cultures of typhoid bacilli seems to confer a marked immunity to the disease. While the duration of this immunity has not yet been definitely determined, the results of experiments with the agglutination of the blood of inoculated persons would indicate that the immunity has a duration of less than one year. It should be borne in mind, however, that the duration of the immunity may not coincide with the persistence of the agglutinating reaction in the blood. This has still to be determined. The reaction from the inoculation is in most cases slight, and the value of the protection has been thoroughly demonstrated by its use in military forces. These facts would seem to warrant a more general use of the method in those particularly exposed to the infection, especially physicians and nurses. Its value in the face of an epidemic has still to be determined.

In conclusion, the prevention of typhoid fever in the United States to-day depends on an improvement in the present methods of disposing of human excreta. Until all the people can be taught that the most dangerous material with which they come in contact in their daily lives is filth from human bodies, and until their sanitary habits are so changed that human filth is prevented from reaching human mouths, the prevention of typhoid fever cannot be consummated.

The necessary brevity of this report has prevented a fuller discussion of many questions into which the committee would otherwise have gone at length.

The report is a condensation of facts and views from many sources and your committee has not deemed it wise to attempt to give individual credit for them.

The views expressed in the report regarding typhoid fever from infection originating within the affected community are based largely on work done in the cities of Washington, D. C., and Richmond, Va. The committee feels that it should acknowledge its obligation to Dr. E. C. Levy, Chief Health Officer of Richmond, Va., for much of the work on which these views are based and for much assistance in clearly defining the distinction between the two types of infection in any community — that originating without and that originating within the community itself.

HOW TO COLLECT OLD MEDICAL BOOKS IN EUROPE

WHERE TO GO AND WHAT TO LOOK FOR *

FIELDING H. GARRISON, M.D.
AND
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WASHINGTON, D. C.

There are physicians who not infrequently apply to themselves what, it may happen, is one of their own favorite prescriptions — a summer vacation in Europe. To such, a few hints as to ways and means of locating rare medical books while abroad may not come amiss, while it may perhaps interest the returning traveler to survey a few actual or hypothetical experiences.

We will assume that our traveler, if not interested in the whole history of medicine, or at least a specialist, is at any rate sportsmanlike enough to care something about the classics in his favorite branch of medicine. To one of this stamp Europe is indeed the Happy Hunting Grounds — the most favorable haunt for the medical book-lover. On the Continent there is always an even chance of picking up some little treasure-trove of European medicine or even one of the earlier medical Americana for a song. But, as with hunting and fishing, there are more ways than one, so success oftenest comes to him who shuns "the madding crowd's ignoble strife." Where there is more competition among buyers than among sellers, prices are sure to be high and let no one fancy that the larger antiquarian bookstores in cosmopolitan centers will let anything go for less than it is worth. In an interesting talk before the Medical Library Association in the spring of 1909, Sir William Osler emphasized the point that, on account of the growing interest of medical book-fanciers in rare first editions and quaint folios, such things are becoming practically inaccessible by reason of the prohibitive prices put on them by antiquarian booksellers. Reasonable figures, it seems, can only be had at some occasional auction sale or in out-of-the-way places in Italy. To illustrate this, he cited an experience of a copy of the "Inventum Novum" picked up for a lira, when a western colleague who was also an admirer of Auenbrugger had just paid $100 (about 500 times as much) for the same classic in Germany. This is, of course, an exceptional piece of luck, yet it illustrates the value of frequenting the haunts of the *Kleinstädter* — the little stalls about Paris, the English cathedral and seaport towns, some quaint old city of the Low Countries, the little places nestled in the Swiss or Tyrolese Alps, the charming old towns of the Fatherland, famous in civilization and learning, and, above all those Italian cities of lesser rank, which Renan thought still "aglow with infinite glory"— Florence, Siena, Perugia, Padua, Milan, Turin. Let neither Venice nor the devious by-ways of the Eternal City be forgotten, nor Vienna and the Slavic and Scandinavian university towns. It is in the modest obscure book-stalls of places like these that one can buy to greater advantage, sometimes making remarkable finds at prices four or five times less than the experienced antiquarian would sell them for.

As the true traveler is not he who rushes from pillar to post, annihilating space and time in his mad effort to see everything at once, but rather he who is inclined to "loaf and invite his soul," to saunter, to *flâner* and to absorb the atmosphere of some beloved place, so there is a gentle art of book-buying as well as of book-selling, the rudimentary features of which are known to every true bibliophile. We can only deal in glittering generalities, but those of the true cult inevitably get the browsing habit. As in bazaars in the far East, shopping is always a sort of social diversion, so the book-lover *pur sang* will never ask for a coveted volume pointblank, for, if the dealer happens to be one who has a sliding scale of prices, he is sure to profit by so naïve an interest, especially if his prospective customer is perceived to be a foreigner. As Balzac says: "Too much confidence diminishes respect, while others take advantage of excessive enthusiasm." If time permits, it is better to spar for points. Look as innocent as possible, and when the zealous bookseller comes smilingly forward, simply say that you want to look around a little. Left to your own resources walk from shelf to shelf, addressing to the bookseller now and then some question which will bring you nearer your goal. Perhaps, like the unfortunate antiquarian in Henry James' remarkable study "The Bench of Desolation," your dealer may have a fine feeling for literature itself. In this case you can safely chat with him about the desired volume, and it would be a very poor bookseller indeed who failed to produce it under these conditions along with some others. He will, in fact, show you these books in the spirit of the hidalgo in "Hernani"—*J'en passe et des meilleurs.* You examine them at leisure and finally say, in passing, that while it is not exactly of great interest to you, you might buy this volume if it does not come too high, or else simply price the books indifferently one by one. The dealer, happy that he is, after all, about to make a sale to the stranger, names a moderate price, and the purchaser walks away in the happiest frame of mind. On the other hand, a bookseller who nags his prospective customers with his importunities, however polite or well-meant, is not likely to attract them. It is an unwritten law of human nature that those who make social or other advances too rapidly usually turn out to be suspicious acquaintances and a fair standard of self-respect, for men and women alike, is summed up in the famous inscription over the gateway of Krupp's gunfoundry at Essen: "Those applying for permission to see these works may expose themselves to a refusal." As a rule, however, such defensive tactics are seldom necessary with the gentle antiquarian who is too frequently of a retiring, if not of a negative, disposition.

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* From the Library of the Surgeon General's Office.

* For reasons of space, a "miniature Baedeker for medical bibliophiles," prepared to accompany this article, is here omitted, but is given in full in the authors' reprints, which will be sent on request by the authors or by THE JOURNAL, on receipt of a stamped and self-addressed envelope

In the matter of prices in general, whether printed in a catalogue or given by word of mouth, we should say that, provided one can afford it, the price asked for any good book is seldom too much. It is always well to remember, too, that what seems a large sum of money, as given in francs, marks, lire, crowns or roubles is, after all, not so much in United States money or as compared with American prices for the same book. The genial Autocrat once described himself as springing like a tiger on some coveted volume and the real ardor of the chase lies not so much in driving a bargain as in getting what one wants by the hunting instinct.

In seeking for rare medical books it is quite necessary to have the collector's *flair* for the quarry—to know what to look for. Yet, even when this condition is fulfilled, a possible purchase must still depend on two determinants: the extent of the purchaser's inclination and the length of his purse. Readers of Goethe's autobiography will remember how he advises the connoisseur in painting to buy the best pictures of his own period rather than old masters because, for the same or even less money he can in this way build up a collection which will become choice and rare enough in his own life-time. This is even more true of the medical classics for, as we have said, prices for the older books are even now so prohibitive that they can only be collected by book-clubs and libraries or else by the few physicians who may be accounted "wealthy" in the financial sense. At a time when American enthusiasts will pay as much for the Baltimore edition of Edgar Poe's maiden efforts in verse as they would for the first folio of Shakespeare ($2,900 in two instances), it is hardly likely that the greater classics of medicine—the Greeks, Vesalius, Paré, Harvey, Sydenham—will go a begging, unless there should be some unimaginable world-slump in prices. The old Greek and Roman classics are, in most cases, fine specimens of the work of the great Renaissance printers, and many of these are therefore the *ultima Thule* of the collector. As Osler has said, "An Aldine here and there, a few fine parchment-bound Juntas, an Oporinus or a Froben in the original boards and stamped pigskin, a fine Paris Stephanus, an Elzevir or a Plantin, give tone to the shelves, just as do the Stuarts and Copleys to the dining-room in an old mansion."[1] The antiquarian dealers know this and charge accordingly. Some of these specimens of fine printing, however—the Elzevirs in particular—have greatly decreased in value of late years and are consequently more easily obtainable by those who fancy them, while the books of the English printers of the sixteenth century—Wyer, Pynson, Copeland—have increased in value from fifty to a hundred fold on account of their present scarcity, originally due to the destruction of so many of them during the Civil Wars of England and in the Great Fire of London in 1666. For example, the different imprints of Linacre's translations of Galen and many of the English anatomical classics of the post-Vesalian period are exceptionally hard to come at, and, in each case, like the bronze in Browning's poem, "esteemed a rarity." Should any collector be lucky enough to bag any piece of early printing, English or other, he may remember that it is quite immaterial if the book has no intrinsic value in itself. Any specimen of early printing or of a famous printer has a bibliographic value which determines its price irrespective of its intrinsic value. For this reason, we repeat, the books most likely to be within the average collector's reach are those of the eighteenth and nineteenth centuries and, of these, stray "bargains" at stalls will usually be in pamphlet form (within a hundred pages in size). By sheer luck a collector might happen on a Rösslin, a Cornaro, a Fracastorius, a Paracelsus, with its flamboyant title-page in red and black type, an Athanasius Kircher or even a Wepfer on apoplexy offered at a reasonable figure somewhere on account of its small size or shape, and classics of these dimensions increase in number as we approach the modern period. The small-sized book, like the short story, the lightning express, the telephone, wireless, the motor-car, the airship, predigested foods, tabloid preparations, heart-to-heart talks and saltatory evolution per social uplift is one of those frequently unattainable ideals of modern life which illustrate Maupertuis' principle in mechanics: that we aim to get at anything or to get out of any difficulty by the shortest possible cut. It is in the eighteenth century that we begin to find the little classics or *Kleinmeister*—things like Fothergill on diphtheritic sore-throat (1747), Caspar Friedrich Wolff's "Theoria generationis" (1759), Auenbrugger's "Inventum novum" (1761), Sigault on symphysiotomy (1777), Pott on spinal caries (1779), Mesmer on animal magnetism (1779), Withering on the foxglove (1785), and Jenner's different pamphlets on vaccination. In the nineteenth century the number of these pamphlet classics begins to increase apace, following the modern tendency toward specialization, and the specialist will naturally keep his eye open for the famous monographs on his particular subject. We may expect the anatomist to look not only for the numerous post-Vesalian pamphlets of the seventeenth century but also for the essays of Cooper, Wrisberg, Meckel, Lieberkühn, Zinn, *hoc genus omne,* for the beautiful title-page of Lorenzo Bellini on the structure of the kidneys (Florence, 1662), and for Goethe on the intermaxillary bone (Jena, 1786); the adept in finer anatomy for Schwann (1839) and Schleiden (1842), Gerlach (1858), Max Schultze on protoplasm (1867), Walther Flemming on cell division (1882), Golgi (1885), Ehrlich on intravital staining (1886), and Ramon y Cajal's "Nuevo concepto" (1892). The physiologist might begin with the English classics on respiration and keep in mind a long list of attractive desiderata of small size, including Galvani on animal electricity (1792), Sir Charles Bell's "New Idea" (1811), Marshall Hall on reflex action (1833), Beaumont on the gastric juice (1833), Purkinje on ciliary motion (1835), Helmholtz on the conservation of energy (1847), the epoch-making monographs of Claude Bernard, Pflüger on electrotonus (1859), Marey on the sphygmograph (1860), Fritsch and Hitzig on cerebral localization (1870), Hering on facultative organic memory (1870), or Bayliss and Starling on the chemical regulation of the secretions (1904). The clinician may reflect that there is probably only one copy of Parkinson on the shaking palsy (1817) in the United States, and perhaps only two to be found in any English library;[2] he will know why Heine on infantile paralysis (1840) or Currie (1797) and Brand (1863) on hydrotherapy in typhoid are so much worth having nowadays and why the second edition of Laënnec would be quite as valuable a possession as the first. The surgeon will naturally value the original pamphlets on anesthesia, or Lord Lister's original paper on antiseptic methods (1867), or Esmarch on hemostatic bandaging (1873); the obstetrician and gynecologist will probably hold in especial esteem Paré on podalic version (1555), Deventer on pelvic deformities (1701), Holmes (1842) and Semmelweis (1861) on puerperal fever, Simpson on chloroform (1847), Marion Sims on vesicovaginal fistula (1853), Noeggerath on latent gonorrhea (1872), Parry on extra-uterine pregnancy (1876), Sänger on Cesarean section (1882), Credé on infantile conjunctivitis (1884), or Tait on pelvic hematocele (1888). The ophthalmologist will have a long list of "real values," ranging from Bartisch's "Augendienst" (1583), Kepler's "Paralipomena" (1604), Scheiner's "Oculus" (1619), Descartes' "Dioptrics" (Elzevir of 1644) to Brisseau (1706) and Maître-Jan (1707) on cataract, Dalton on color-blindness (1794), Young on astigmatism (1801), Helmholtz on the ophthalmoscope (1851), Snellen on test-types (1862) or the Sydenham imprint of Donders on accommodation and refraction (1864). The throat specialist will not forget the three pamphlets of Manuel Garcia (1855), Türck (1858), and Czermak (1858) on laryngoscopy, Bouchut and Trousseau on laryngeal intubation (1858) and the earlier reprints of O'Dwyer. The expert in medical jurisprudence will, of course, have a lively interest in the Caroline Criminal Constitutions (1533) and the little treatises of Codronchi (1597), Fedeli (1602) and Zacchias (1621).

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[1] Bull. Med. and Chir. Fac., Maryland, Baltimore, 1909, i, 251.

There are some medical books of exceptional rarity such as the early tracts on syphilis, Bagellardo on pediatrics (1472), Grassi on eye diseases (1475), the Florentine *editio princeps* of Celsus (1478), the booklet on personal hygiene which Moses Maimonides wrote for the use of Saladin (Florence, 1478), Mattioli's commentary on Dioscorides (1544), the first edition of Sydenham's "Schedula Monitoria" (1666) and Sanctorius' commentary on Avicenna (1625) concerning which Dr. Weir Mitchell relates that it took Quaritch seven years to find him a copy.[3] Chances of finding these are variable. As Dr. Billings has remarked,[4] a collector of to-day is as likely to pick up Gordon's "Lily," Gaddesden's "Rose" or any of the incunabula listed by Hain as the early American tracts of Thacher, Boylston and Waterhouse on small-pox. Many of the best-known classics of more recent times, such as Daviel on cataract extraction (1753), the original Latin of Wolff's great monograph on the development of the intestines (1764-6), Lavoisier's discovery of oxygen (1775), Parry on exophthalmic goiter (1786), McDowell on ovariotomy (1816), Wöhler's synthesis of urea (1828) or Gregor Mendel on plant hybridity (1865) are buried in the pages of rare periodicals.

A special class of books which will grace any public or private collection is that which includes the best specimens of anatomic illustration, from the imposing woodcuts of Vesalius and Stephanus and the splendid copper-plates of Casserius, Bidloo, Ruysch, Mascagni and Albinus, down to the spirited steel engravings which Anderloni made from Scarpa's pen-drawings, or the self-illustrated "Dissections" of Sir Charles Bell. In this class one might include the actual anatomic works of great artists—the folios of Leonardo da Vinci's drawings in red chalk (1898), Albrecht Dürer on human symmetry (Nuremberg, 1532), Rubens' "Théorie de la figure humaine" (1773), John Flaxman's "Anatomical Studies," (1833), and perhaps even a specimen or two of those curious short-hand notations of human anatomy from the pencil of Rodin. One rare and valuable example of pathologic illustration, the "Selecta Praxis Medico-Chirurgica" of Alexander Auvert (Paris, 1856), has a unique interest. It consists of a series of masterly delineations of disease, executed partly by means of colored line engraving, partly in stipple retouched in watercolor, and is much esteemed, not only for its accuracy of detail, but particularly as a wonderful example of illustration in colors. The only copy of the first edition in the United States is to be seen in The Library of the Medical and Chirurgical Faculty of Maryland.

A word about Spanish medical books, in which most medical libraries are known to be sadly deficient. Spain may seem as virgin soil to the collector, yet the medical books printed in Spain and Portugal before 1500, and even up to 1550, are of such extreme rarity and their value so well-known even to the obscurest Spanish bookseller, that there is little chance of finding them, while the modern medical literature of Spain, always excepting the writings of Gimbernat and Ramon y Cajal, has nothing of more than ordinary interest. Of especial value are the surgical treatises of Julian Gutierrez (1494), Juan de Aviñon (1545) and Francisco Arceo (1574), Valverde's "Anatomy" with its characteristic copperplates (1559) and Joseph d' Acosta's "Historia natural y moral de las Indias" (1590), which contains the first account of mountain sickness. A find which might dignify any surgeon's collection would be a possible copy of the rare Spanish translation of Lanfranc's "Cirurgia," published at Seville in 1495. As a specimen of splendid typography it is comparable with a black-letter Chaucer.

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[2] See Catalogue of the Manchester Medical Society, 1890, p. 872. Also: Supplement to catalogue of the library of the Royal College of Physicians of Edinburgh, 1863-70, 1870, p. 186.

[3] Tr. Cong. Am. Phys. and Surg., 1891, New Haven, 1892, ii, 166.

[4] Tr. Internat. M. Cong., Lond., 1881, i, 60.

Collecting old books in midsummer might be likened to the almost outworn boyhood diversion of looking for primitive stone implements over tilled fields in the springtime. As the farmer's ploughshare used to turn up a new crop of Indian arrow-points and stone axes regularly each succeeding year, so the owner of valuable books, is for various reasons, often disposed or obliged to get rid of some of them as summer approaches. A good rule is, always to look for a book highly valued in a given country in some other country. For example, Schoepf's "Materia medica Americana" (Erlangen, 1786), of which we know of only three copies in America, might very well turn up somewhere in Germany at a moderate price.

It is hoped that these random notes may emphasize a few bibliographic values which the specialist, from his deeper knowledge, will not regard as impertinent.

THE USE OF SALICYLATES IN RHEUMATISM *

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NEW YORK

We frequently hear dissatisfaction expressed concerning the treatment of rheumatism with salicylates. This dissatisfaction seems to arise from several causes, either because every ache or pain or morbid process which occurs in the muscles or joints will not react promptly to salicylates, or because the patient cannot tolerate the enormous doses administered, or that even in spite of large doses up to tolerance, certain lesions such as the cardiac lesions of true rheumatism, are not controlled or prevented with facility equal to that by which the pain and swelling of the joints are controlled.

Let us consider for a moment the various treatments that were used before salicylates, in 1875 and 1876, were first used for rheumatism. After having tried the enormous bleedings for depletion, and terrific purgation by mercury, and the various antiphlogistic ideas for which veratrum viride, aconite and antimony were given in large doses, and having frankly realized that these did harm rather than good, the profession settled down to either doing nothing at all and treating symptoms as they arose, or giving the so-called alkaline treatment with potassium bicarbonate, which certainly did not harm the patient as many of the other forms of treatment had done, but which, on the contrary, seemed to show a distinctly beneficial effect, for in fact under this treatment there was and still is less cardiac involvement than under any other single or uncombined treatment.

Today, outside of some form of salicylate treatment, the alkaline treatment remains the most effective. The men who first tried the salicylate treatment had seen many methods tried and pronounced a failure, and after thorough trial they were forced to the conclusion that the salicylate treatment shortened the period of pain and fever in rheumatism. Maclagan said that the duration of the pain and suffering was the same number of days as formerly it had been weeks.

One great difficulty from which the profession is slowly emerging is the lack of differentiation made between true rheumatism, which will respond to some form of salicylates, and the various other forms of arthritis which occur, as gout, tuberculosis, the infected arthritis accompanying gonorrhea and scarlet fever, rheumatoid arthritis, and the infected arthritis of unknown origin, such as Still's disease, affecting the smaller joints; these are all classed together as rheumatism and often treated alike. "He who diagnosticates well, will cure well," was never more strikingly illustrated than in the benefits of a correct diagnosis in the various forms of arthritis, and the proper treatment for each varying morbid process. Salicylates will not disinfect the pus of a scarlatinal joint. They will not immobilize and clean out a tuberculous joint. They will not act as a tonic or as an alterative and build up a depleted body and help it overcome the disintegrating processes of arthritis deformans. They may quiet the pain, but they will not subdue the inflammation in the spindle-shaped joints of the fingers in the acute arthritis of unknown origin. They may stop the pain in gout and, with rest in bed and free purgation, the gouty attack pass by, but we cannot expect their full, rapid and beneficial action except in the case of genuine rheumatism.

By rheumatism is meant here that inflammatory process of the larger joints which in childhood is so frequently accompanied with cardiac involvement, and in adult life shows some form of cardiac involvement in over 50 per cent. of those affected. Monarticular rheumatism is exceedingly rare, and in true rheumatism the small joints of the fingers and toes are involved with equal rarity. In this article the symptom-complex of the inflammation in the large joints with or without cardiac involvement is alone referred to as rheumatism.

If we confine ourselves to this conception of rheumatism, I am sure that we shall find some form of salicylates which will act beneficially; but simply because salicylates will act beneficially we are no more justified in treating patients suffering from rheumatism in an absolutely routine way than we are in any other disease. The human intestine is not a test-tube, although often treated like one, and a human organism has its distinct tolerances and intolerances for the different forms of salicylates as distinctly as it has for other remedies.

Most patients are easily irritated by salicylic acid and their stomachs soon reject it, yet these same patients will readily take sodium salicylate with no disturbance. Some patients cannot take sodium salicylate, and yet they tolerate oil of wintergreen in large doses and rapidly respond to it. In other patients I have seen salol and salicin act well, when other forms of salicylates would not, and certainly in children and in the aged, salicin is recognized as the form which is the least depressing and from which the most benefit seems to be obtained.

Aspirin has lately come into vogue and is highly praised by some authors, and yet in my own hands the result from it in rheumatism has been very disappointing. Synthetic methyl salicylate is to be avoided for internal use, and should only be used externally, and yet oleum betulæ (the oil of sweet birch) contains the methyl salicylate in the natural form, and is one of the most active and broadly tolerated with the least toxic symp-

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

toms of all the salicylates, and it seems a generally accepted fact that the natural salicylates are less irritant than the synthetic.

Synthetic salicylic acid is usually formed from phenol, and the orthosalicylic acid is the one used medicinally. The meta-acid is therapeutically inert, and the para-acid is sometimes present to the detriment of the results obtained, for it is distinctly more toxic than the ortho acid. At times all the phenol is not converted into salicylic acid, and one often wonders when reading of the cases of toxic action of collapse with failing respiration, whether it is not a case of badly prepared synthetic compound in which some phenol or para-salicylic acid is causing the damage to the patient. Some salicylic acid may undergo decomposition, total or partial, with liberation of phenol or compound of phenol, and in fact, some samples of salicylic acid smell of phenol. Sodium salicylate is the form in which the salicylates are usually administered, and it is well borne by most people. If given in solution with excessive alkali it is infinitely less irritant to the gastric membrane than when given in powder.

Salol, which is phenyl salicylate, also has a disadvantage of breaking up into salicylic acid and phenol in the intestine, and hence should not be given if the patient is suffering from kidney leisons. This often acts well, and usually in the amount given is non-toxic, but it cannot be pushed to as high doses nor does it seem to be so rapidly absorbed as sodium salicylate. It is less disturbing to the stomach, and some individuals whose gastric mucous membranes are unusually sensitive to sodium salicylate can tolerate salol. Salophen, which is the acetyl paramido phenol salicylate, had quite a vogue at one time, but seems to have fallen into disuse. Like salol, it has the phenol element in it, and like salol I have seen it rapidly reduce pain and fever in rheumatism when other forms of salicylate could not be tolerated.

Croftan recommends aspirin as the least irritating to the stomach, intestines and kidneys; he believes that this is the best form of salicylate, and declares that it possesses hardly any toxic symptoms. I have seen a few patients in whom aspirin seemed to be most irritant to the gastric mucous membranes, and produced the general toxic symptoms of the salicylates very rapidly in small doses. In my own experience it has not been as satisfactory for the reduction of fever and an improvement in the general condition of the patient as either sodium salicylate or oleum betulæ; in severe cases of rheumatism I have failed to get satisfactory results with it. This probably is due to the presence of the acetyl group, which causes this substance to be slowly broken down and thus probably slowly absorbed. There seems to be no question that to obtain rapidly beneficial results we must have a form of salicylate which is acceptable to most gastric mucous membranes, is quickly absorbed, and hence produces its effect quickly, and then is quickly excreted, that there may be no accumulation in the body.

Some years ago Kinnicutt recommended the oil of wintergreen, which is a natural methyl salicylate. This natural oil of gaultheria is no longer on the market, but the oleum betulæ or oil of sweet birch is, and it contains the same natural methyl salicylate. This form of salicylate in many ways fulfils the desired objects of which I have just spoken—the rapid absorption, the rapid excretion, and, to most people, a non-irritating effect on the gastric mucous membranes. In those patients with whom it disagrees, I have found it even when disturbing the stomach to cause less often the headache, the ringing in the ears, and the dizziness. It has been my experience that the majority of patients will respond more quickly and with less disturbance when the oil of birch is given them, than they will to synthetic sodium salicylate or the other forms of salicylates mentioned. Besides the advantages just mentioned, it has the further advantage of being a natural salicylate.

Dr. August Seibert of New York has recently recommended the hypodermic method of giving salicylates. The results reported are excellent, and this method may prove of advantage in those patients whose gastric membranes cannot retain the salicylates. The following procedure is recommended: In acute rheumatic infection of joints, heart, pericardium, pleura and central nervous system (chorea), 10 c.c. of a 20 per cent. sterilized solution of fresh sodium salicylate to 100 pounds of body weight are injected fifteen minutes after an appropriate cocain solution (gr. 1/8 to 30 drops of water) has been injected under the same spot. If the injections are made earlier than this, the solution will cause pain. This is repeated every twelve hours. In severe cases, with many localizations of the rheumatic process, the dose may be increased to 15 c.c. of the solution to 100 pounds of body weight.

It is considered essential to the success of this treatment that the above doses be used. Smaller doses will be without effect. The effect may be noticed within three hours after the first injection. Joint stiffness, pain, fever and pulse-rate diminish, and the general feeling of the patient improves. If the injections are continued regularly every twelve hours, the improvement also continues. If they are omitted for twenty-four hours in severe cases, the symptoms will grow worse, but in milder cases the improvement may continue. None of the injected patients presented symptoms of heart depression, ear buzzing, or profuse sweats. In the so-called chronic cases, 10 c.c. to 100 pounds of body weight of the following oily solutions are injected every twenty-four hours: acidi salicylici, 10 gm.; olei sesami, 80 gm.; alcohol, pure, 5 gm.; and gum camphor, 5 gm. The effect of the camphor on the heart is especially beneficial in pericarditis and endocarditis.[1]

Some months ago, a member of a well-known firm in New York suggested to me a form of salicylate which seemed to possess the various advantages of which I have just spoken, and to reduce to a minimum the irritating and toxic symptoms from its use. This salicylate is prepared as follows: oleum betulæ, the true oil of sweet birch, is taken and saponified either by superheated steam or caustic alkali, the resulting methyl alcohol driven off by heat, and the resulting salicylate decomposed by sulphuric acid and washed until free from sulphates; the salicylic acid is then purified by recrystallization. This salicylic acid is taken and mixed with a sufficient sodium bicarbonate in excess, and with a sugar binder is made into tablets, so that on solution each tablet will give five grains of sodium salicylate. This is freely soluble in water, with a pleasant acid taste, and with a free elimination of CO_2 gas. This seems to form a sodium salicylate in a nascent condition, for with the dry sodium bicarbonate and dry acid when the solution is made, they combine and fulfil the idea of nascent condition.

These tablets I have been using in a four-months' hospital service in Bellevue Hospital with very satisfactory results in severe cases of rheumatism. There has been a very noticeable lack of gastric irritation even when 20 grains were given every two hours, and when the ringing in the ears was produced and the dose diminished, this ringing quickly subsided. In some patients the fever fell rapidly before the pain ceased and the pain remained for a day or two after the fever struck normal, although very much ameliorated and so insufficient as not to cause much complaint from the patient. In most patients the pain and the fever disappeared coincidentally, while in others the pain rapidly improved in a few hours, and the fever disappeared a few hours later. In two patients with a marked galloping rhythm in the heart, and with increase in the cardiac murmurs, the belief was justified that there was a beginning myocardial inflammatory process. This cardiac condition subsided rapidly in three days, and the temperature went to normal and did not afterwards rise above, even to 99 or 100. Usually, as is well known, when the heart has become involved there is a rise to 99 or 100 for some time after the other symptoms have disappeared. In another patient with pericarditis, acute endocarditis and myocarditis and with a double rheumatic pleurisy, this form of sodium salicylate was the only form which had any beneficial influence. His pericarditis and pleurisy improved rapidly under these tablets. My supply gave out and again there was a recrudescence in the pleurisy and pericarditis. When I obtained more tablets, these processes rapidly improved under their administration. This improvement was so rapid and marked that it forced on me the impression that it was more than a coincidence.

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[1] Seibert: Med. Rec., New York, March 11, 1911.

This form of salicylates seems to enable one to get a large amount of an active salicylate into the circulation at once, in the least toxic and most effective form of the natural salicylate. The process by which this form of salicylate is made is not an economical one, and it is unfortunately doubtful if it could ever be generally commercialized. It is here reported as an exceedingly active and useful form of salicylate, with a maximum of rapidity of absorption, effectiveness after absorption, and a minimum of toxic action.

In using salicylates in rheumatism, one is impressed by the rapidity with which they act when they act well and when the form of salicylate agrees with the patient, so much so that it is my belief that if within forty-eight hours a distinctly beneficial action is not obtained with the form of salicylate which is being used for that patient, we should use some other form. If sodium salicylate with large doses of sodium bicarbonate do not make a distinctly beneficial impression on the rheumatic process by the second day, it should be changed to the oleum betulæ, that is, the true oil of birch, and if the patient is resistant to that, it should be changed to salophen or some other form of salicylate.

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HERPES ZOSTER IN CONNECTION WITH KIDNEY LESIONS

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Since Head's fundamental investigations on certain hyperalgetic cutaneous zones and their relation to affections of deep-seated visceral organs, it is generally accepted that pains located in these organs are transmitted to well-defined areas of the integument. The transmission of these pains is supposed to occur through fibers of the sympathetic nerve originating in the same cord-segments.

While these hyperesthetic zones, up to a short time ago, for want of better knowledge, were considered neurasthenic or hysterical stigmata, Head was the first to establish their anatomic importance as reflex phenomena. He proved conclusively that the location and extension of these hyperesthetic areas as dependent on pains of visceral organs coincided in many instances with the cutaneous eruptive zones of herpes zoster. In other words, by irritation of corresponding segmental fibers of the sympathetic nerve, paresthesias of pain are caused in certain zones of the periphery, which may be followed by the appearance of a typical herpes zoster.

The hyperalgetic peripheral zone of the kidney, according to Head, corresponds to that area of the integument which is innervated by the tenth and eleventh dorsal and the upper lumbar spinal nerves.[1]

During the last few months Bittorf, Kanera and Rosenberg,[2] each in brief succession, reported a case of herpes zoster of the tenth and eleventh dorsal nerves in connection with attacks of kidney colic caused by intermittent hydronephrosis, floating kidney and nephrolithiasis, respectively.

Since the literature does not contain other records of like or similar observations, the two following cases, which occurred in my urologic service of the German Hospital, are reported.

CASE 1.—*History.*—An attorney, aged 38 years, had suffered from frequent micturition and intermittent attacks of left-sided kidney colic several years prior to the appearance of a large fluctuating hydronephrotic sac on the same side, which about ten years ago was punctured and evacuated through a small lumbar incision. At the same time a small soft calculus, probably the cause of the ureteral obstruction and consecutive hydronephrosis, was removed from the pelvic portion of the left ureter. Gradually the same symptoms, pyuria pollakiuria and intermittent attacks of colic in the left lumbar region, set in again and became intensified. The patient's condition, of late, grew perceptibly worse, the main symptoms being strangury, frequent attacks of dyspepsia, headache and general malaise.

Examination.—General examination negative; kidneys not palpable; Wassermann negative. Urine cloudy, containing albumin and, microscopically, abundant pus. At two cystoscopic sittings the bladder presents the picture of a chronic cystitis; trigone congested; left ureteral orifice somewhat patulous; both ureters catheterized to pelvis; urine from right kidney is clear and normal, while that of the left side is cloudy and presents, chemically and microscopically, the same findings as the bladder urine. A marked deterioration of renal function (indigo carmin phloridzin, etc.) is found on the left side, while that of the right kidney appears normal. Blood cryoscopy shows 0.573. Radiographic plates negative for calculi-shadows. Renal secretion of left side shows pure culture of *B. coli*. On the basis of these findings, an advanced left-sided pyonephrosis is diagnosed and the patient prepared for nephrectomy on that side.

Two days before the date set for the operation, the patient complained of a slight chill and tenderness over his left thigh radiating toward the knee. On examination a herpetiform eruption was noted on the anterior surface of the left thigh in its center extending about 5 cm. in length and 2.5 cm. in width. Solitary blisters, also in center of anterior surface of thigh, were visible one 4 and one 5 cm. above and one about 10 cm. below the main focus. Temperature slightly elevated, reaching 100 F. but once.

Operation.—Under expectant treatment the zoster readily dried up, so that the contemplated operation could be performed nine days after the date first set. By lumbar incision a fluctuating sac of the size of a child's head was exposed; its enucleation was performed with great difficulty on account of many fibrous adhesions, which were particularly dense at the site of the old incision. The ureter was stitched to the lower angle of the wound which was closed by layers. The kidney tissue of the removed specimen, which represented a large sac, appeared to be reduced to a thin layer of fibrous tissue. Microscopic sections (Dr. Ophüls) show on inside of sac layer of vascular granulations and cicatricial tissue which is partly covered with stratified epithelium. In some sections the kidney tissue shows a diffuse fibrosis, dilatation of capsules of glomeruli, tubules wide, filled with desquamated epithelium. In other places all that is left is dense fibrous tissue. Patient made an uneventful recovery.

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[1] Sahli: Lehrbuch d. klin. Untersuchungsmeth, 1905.

[2] Deutsch. med. Wchnschr., 1911, Nos. 7, 14 and 17.

Comment.—The cutaneous zone of herpes zoster in this case corresponds, according to Head, to the first and second lumbar (or ileo-inguinal, genitocrural and external cutaneous) nerves. The course and extension of the skin lesion comprises an area which is innervated by the crural branch of the genitocrural and the middle cutaneous nerves, which latter nerve has communicating fibers with the crural branch of the former. It is possible that the eruption of herpes was superinduced in this case by the passing of the ureter catheter to the left renal pelvis, as the patient, soon after each cystoscopic sitting, complained of colicky pains in the left lumbar region. In the three cases reported in the German literature, the herpetic eruptional zone was located on the back in or near the lumbar region, corresponding to the last two dorsal nerves, while the location of the zoster on the anterior surface of the thigh in my own observation suggests an irritation of the lower or lumbar portion of Head's spinal center for kidney affections.

Since writing the above I find an analogue to the location of the herpetic cutaneous zone in two cases of herpes zoster reported by Rosenbaum,[3] in connection with kidney affections. One of the observations concerns a girl of 11 years, who had to undergo nephrectomy on account of a left-sided kidney rupture. Eighteen days after the accident, a zoster appeared over the lumbar region as well as on the lateral and anterior surface of the thigh on the left side, an area which is innervated by the upper roots of the lumbar plexus.

Case 2.—*Past History.*—A farmer of 51 was admitted to the hospital in August, 1910, on account of intermittent attacks of right-sided colic radiating from the costal arch downward. The attacks had gradually increased in severity during the last year, occurred about once a month and were invariably connected with vomiting of bile. Nothing of pathologic note could be ascertained by the general examination and clinical observation. On account of the presence of microscopic pus in the urine, a right-sided renal lesion (probably nephrolithiasis) was suspected, a presumption which was not substantiated by either the cystoscopic or radiographic examinations. Both renal secretions were clear and microscopically and functionally normal. Sugar reaction, for instance, was strongly positive on both sides almost simultaneously, fifteen minutes after phloridzin injection. On these findings a right-sided renal lesion was ruled out and a previous gonorrheal infection, involving the prostate, was held responsible for the pus found in the urine. With no other evidence in favor of the probable existence of a cholelithiasis or, possibly, a chronic appendicitis than the symptoms present during the attacks, an exploratory laparotomy was performed at the patient's own request revealing all abdominal viscera normal, save an elongated and tortuous appendix which after its removal showed an obliteration of the lower half of its lumen. The patient's rapid recovery was, about two weeks after the operation, interrupted by a slight chill, rise of temperature and tenderness over the right chest and back, where an herpetic eruption appeared extending from the external margin of the manubrium sterni to the median line of the back. The zoster, for as such the cutaneous lesion was readily recognized, covered the sixth costal interspace extending to the tenth intervertebral space on the back, corresponding to the tenth dorsal nerve of the spine. The zoster gradually healed within two weeks and the patient returned to his home in the country in excellent condition. A few months later the same attacks of right-sided abdominal colic set in again with greater intensity and more frequently than before. The patient began to suffer from frequent and urgent micturition, independent of the attacks, and the urine which was repeatedly sent for examination was cloudy and contained pus in abundance. The pains during the attacks were now reported to radiate toward the bladder and scrotum. The patient reentered the hospital last May.

Examination.—Cystoscopy now showed the picture of a marked cystitis; right ureteral orifice pouting, emitting turbid fluid; the right renal secretion was cloudy and contained, microscopically, abundant pus and numerous blood-shades, while the urine obtained from the left kidney appeared macroscopically and microscopically normal. Functionally, the right kidney was found to be materially deteriorated as against its left mate, from which normal values were obtained. Blood cryoscopy showed 0.568, *x*-ray plates were negative for calculi shadows. Pyelography demonstrated the moderately enlarged and irregularly shaped right renal pelvis to be located unusually high between the ninth and eleventh costal interspaces. The injection of collargol solution required for pyelography caused, as the patient stated, the same pain as during the previous attacks of colic.

Operation.—Exposure of the right kidney was extremely difficult on account of its location high under the ribs and owing to many dense perinephritic adhesions. A severe hemorrhage occurred from an aberrant renal blood-vessel imbedded in adhesions and covering the ureter near the lower pole of the kidney. Finally, the organ was sufficiently freed to permit nephrotomy. The cut surfaces of the kidney presented many small cavities containing pus and sandy detritus; the renal pelvis and upper portion of the ureter were widened and filled with pus and fragments of gravel. The kidney was therefore removed, a small tear in the pleura was carefully repaired and the wound closed in the usual manner.

The patient rallied well from the operation and made an uneventful recovery. At the time of his discharge from the hospital he urinated about once every six hours; urine clear; its daily quantity about 1,800 c.c., microscopically normal. The patient's general condition was excellent.

Comment.—Although the location of colicky pains pointed in this case to a kidney lesion, an exact diagnosis could not be made for many months on account of the negative palpatory, cystoscopic and radiographic findings. The appearance of the zoster soon after the first operation was most decidedly superinduced by the bruising of intestinal loops and sympathetic fibers during the exploration of the abdominal cavity. The location of the zoster on the chest and back, somewhat above Head's renal zone and corresponding to the tenth dorsal nerve, finds its explanation in the unusually high position of the diseased kidney. The case proves the correctness of Head's teachings and clearly demonstrates the diagnostic aid which could have been derived, at the time, through the correct interpretation of the herpetic eruption on Head's cutaneous zone for kidney lesions.

CONCLUSIONS

A careful investigation of Head's hyperalgetic cutaneous zones should in future be made in all cases of abdominal colic of otherwise doubtful character.

2672 Pine Street.

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[3] Rosenbaum: Deutsch. med. Wchnschr., 1911, No. 24.

New and Nonofficial Remedies

The following additional articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Their acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council. Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book "New and Nonofficial Remedies."

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that, so far as known, it complies with the rules adopted by the Council.

W. A. Puckner, Secretary.

LANOLIN.—A non-proprietary name applied to Adeps Lanæ Hydrosus, U. S. P. For description see the Pharmacopeia or the Physician's Manual of the Pharmacopeia and National Formulary.

COLON BACILLUS VACCINE.

G. H. Sherman, Detroit.

Colon Bacillus Vaccines.—Marketed in two strengths: 1. Each Cc. contains about 40,000,000 killed bacilli. 2. Each Cc. contains about 100,000,000 killed bacilli.

GONOCOCCUS VACCINE.

G. H. Sherman, Detroit.

Gonococcus Vaccines.—Marketed in two strengths: 1. Each Cc. containing 20,000,000 killed bacteria. 2. Each Cc. containing 100,000,000 killed bacteria.

Gonococcus and Staphylococcus Albus Vaccine.—A mixed vaccine containing in each Cc. gonococcus 100,000,000 and staphylococcus albus 400,000,000.

PNEUMOCOCCUS VACCINE.

G. H. Sherman, Detroit.

P [illegible] in two forms: 1. Containing in e[illegible] ococci. 2. Containing in each Cc. [illegible]

Pneumococcus and Streptococcus Vaccine.—A mixed vaccine containing pneumococcus 30,000,000 and streptococcus 20,000,000.

STAPHYLOCOCCUS VACCINES.

G. H. Sherman, Detroit.

Staphylococcus Pyogenes Albus Vaccine.—Each Cc. contains about 300,000,000 staphylococcus pyogenes albus.

Staphylococcus Pyogenes Aureus Vaccine.—Each Cc. contains about 300,000,000 staphylococcus pyogenes aureus.

Staphylococcus Pyogenes Albus and Au[illegible] in four forms: 1. A mixed vaccine contai[illegible] coccus pyogenes albus and aureus each [illegible] vaccine containing in each Cc. staphylococcus pyogenes albus and aureus each 200,000,000. 3. A mixed vaccine containing in each Cc. staphylococcus pyogenes albus and aureus each 300,000,000. 4. A mixed vaccine containing in each Cc. staphylococcus pyogenes albus 400,000,000, and staphylococcus pyogenes aureus 200,000,000.

Staphylococcus Pyogenes Albus, Aureus and Citreus Vaccine.—A mixed vaccine containing in each Cc. Staphylococcus pyogenes albus, aureus and citreus each 100,000,000.

STREPTOCOCCUS VACCINE.

G. H. Sherman, Detroit.

Streptococcus Erysipelatis Vaccine.—Each Cc. contains about 20,000,000 killed streptococci erysipelatis.

Streptococcus Pyc[illegible] in two strengths: 1. Containing in ea[illegible] streptococci. 2. Containing in each Cc. [illegible] cci.

Streptococcus Pyogenes and Micrococcus Catarrhalis Vaccine.—A mixed vaccine containing in each Cc. streptococcus pyogenes 30,000,000 and micrococcus catarrhalis 100,000,000.

Streptococcus Pyogenes, Staphylococcus Pyogenes Aureus and Albus Vaccine.—A mixed vaccine containing in each Cc. streptococcus pyogenes 30,000,000 and staphylococcus pyogenes aureus and albus each 100,000,000.

Streptococcus Pyogenes and Colon Bacillus Vaccine.—A mixed vaccine containing in each Cc. streptococcus pyogenes 30,000,000 and colon bacillus 40,000,000.

Staphylococcus Pyogenes, Pneumococcus and Staphylococcus Pyogenes Aureus Vaccine.—A mixe[illegible] h Cc. streptococcus pyogenes 30,000,[illegible] and staphylococcus pyogenes aureus

Streptococcus Pyogenes, Staphylococcus Pyogenes Aureus and Albus Vaccine.—A mixed vaccine containing in each Cc. streptococcus pyogenes 60,000,000, staphylococcus pyogenes albus and aureus each 200,000,000.

TYPHOID BACILLUS VACCINE.

G. H. Sherman, Detroit.

Typhoid Bacillus Vaccine.—Marketed in three forms: 1. Each Cc. contains about 50,000,000 killed typhoid bacilli. 2. Each Cc. contains about 500,000,000 killed typhoid bacilli. 3. Each Cc. contains about 1,000,000,000 killed typhoid bacilli.

Therapeutics

TUBERCULOUS MENINGITIS

Few diseases are more discouraging to the practitioner, or more disastrous in their results than tuberculous meningitis. Except during the occurrence of epidemics of cerebrospinal meningitis, tuberculous meningitis is estimated by Holt to cause 75 per cent. of the deaths from acute meningitis in children. While epidemic meningitis occurs most frequently between the ages of 2 and 15 years and is also frequent in children under 2 years of age, a very large proportion of the cases of tuberculous meningitis occurs in children under 1 year of age, and particularly between the ages of 9 and 12 months. Some observers think these cases more frequent in April, May and June than in other parts of the year, and conclude that this is due to the general prevalence of respiratory diseases during the late winter and early spring months.

This disease is now definitely recognized as being caused by the tubercle bacillus. It has been generally considered that heredity has a very considerable influence in the etiology of the disease, but the tendency among modern observers is to conclude that what has been heretofore classed as hereditary influence is really exposure of the child to direct contagion from persons suffering from pulmonary tuberculosis. Perhaps children between 9 and 12 months of age are more exposed to this sort of contagion than children of other ages, and also perhaps this sort of contagion is especially operative during the spring months.

It is probable that the contagion is taken into the body through the respiratory organs, and is transmitted to the brain through the circulation. The old idea that the contagious element was transmitted to the brain through the cribriform plate of the ethmoid bone seems to be losing favor.

On post-mortem examination of children who die with tuberculous meningitis the most extensive pathologic changes are found at the base of the brain, and it has been said that cases in which the pathologic lesions are confined to the convexity of the brain are unknown. The lesions affecting the brain may extend to the spinal cord and to the ventricles of the brain. These pathologic changes often appear to be slight compared with the gravity of the symptoms which have been observed during life.

Some have supposed that the disease is more likely to affect delicate and ill-nourished children, but careful observation seems to have shown that this is wrong, and that well-nourished and healthy children are apparently as likely to be affected by the disease as those who are debilitated and ill-nourished.

The disease often comes on insidiously. A slight change in disposition may be the first symptom noticed. There may be irritability, or an indisposition to take notice of and be interested in things that are going on. One of the earliest prominent symptoms is headache. This may be exceedingly severe, and is likely to be attributed to some other cause, as stomach disturbance, or constipation. Headache is not so common in children as in adults, and a continuous headache, if the child is old enough to complain of it, should arouse suspicion of the presence of some intracranial trouble. Vomiting is a common early symptom. It may be of the projectile character, and unaccompanied by nausea. Fever is an early symptom. It may not be of high grade at first, but usually after several days attains a height of from

103 to 105 degrees. Occasionally the earliest symptom to arouse alarm is a severe convulsive attack. This may be followed by other convulsions at longer or shorter intervals.

After the disease has lasted a variable number of days, usually from five to ten, the patient begins to become stupid, and finally becomes entirely unconscious.

Twitchings of the muscles of the arms and legs are common, and the muscles moving the eye-ball may also be affected by these localized convulsive movements. The muscles in the back of the neck and along the spine usually become more or less rigid early in the disease, so that lifting the head or moving the body causes pain. The Kernig sign is usually present. This can be determined by flexing the thigh on the body and then extending the leg on the thigh. If there is irritation of the nervous system from meningitis, this movement will be accompanied by pain and an increasing concavity of the dorsolumbar spine.

The pupils at first may be contracted, but usually later are dilated. The fontanels may be distended.

Death may occur in five or six days, or the disease may be protracted for from two and one-half to three weeks. Rarely the patient lives four or five weeks. Most cases terminate fatally; only exceptional cases of recovery have been reported.

It would seem that the diagnosis of the disease is commonly attended with some difficulty. Certainly a large proportion of mistakes are reported by hospital physicians who see cases after they have been seen by outside practitioners. At the present time it would seem that no one is justified in treating a patient in whom the possibility of the presence of this disease must be taken into account, without performing a lumbar puncture and having the spinal fluid examined microscopically. Since lumbar puncture was introduced by Quincke, in 1891, it has gradually grown in importance as an aid to diagnosis. Like the results of other methods of diagnosis, the results of this method are not invariably infallible, but the results are definite in so large a proportion of cases that its employment should never be neglected. As a rule the tubercle bacillus is found in the spinal fluid obtained by lumbar puncture. Some writers state that this is the fact in 90 per cent. of cases.

Examination of the cells contained in the spinal fluid should also be made. It has been supposed by some investigators that the character of these cells indicated the character of the meningeal inflammation; that in epidemic meningitis polynuclear cells were found in the exudate, while in tuberculous meningitis the mononuclear cells or lymphocytes were present in greater proportion. While perhaps these conditions exist in the majority of cases, it is now believed that the lymphocytes characterize diseases of long standing, and that they may be found in cases of epidemic meningitis which have been protracted.

The other symptoms which are to be taken into consideration in making a diagnosis are the headache, the retraction of the head, the vomiting, and the gradually increasing stupor. The diseases which must be borne in mind and which should not be mistaken for tuberculous meningitis are epidemic meningitis, meningitis due to other forms of infection, malarial infection, influenzal gastro-intestinal disorders, various toxic conditions, and middle-ear or mastoid inflammation.

Besides the lumbar puncture, another diagnostic aid which is of considerable value in this disease is the von Pirquet reaction. The cutaneous reactions from this test are not objectionable, and the test is not a difficult one to employ. Lucas, of Boston, found that of thirty cases of tuberculous meningitis, twenty gave positive reactions. This indicates that the method has considerable value, but cannot be absolutely relied on in every case.

The treatment of this disease cannot be undertaken with any expectation of a cure. The prognosis is so very grave, and recoveries are so rare, when the disease is definitely determined to be tuberculous in character, that much cannot be expected, and but little hope can be held out to the parents, from any treatment.

The treatment should be commenced with a thorough evacuation of the bowels with a large dose of calomel. To a child a year old as much as a grain may be given at one dose. It is better to give this amount in a single dose than to give it in divided doses.

External applications are held in considerable repute by most practitioners. If it can be determined early in the disease that there is an inflammation at the base of the brain, depletion of the vascular system should be employed. This may be accomplished by the application of one or two leeches over the mastoid process. Cold, by means of ice-bags, should be applied intermittently to the head, and ice-bags may be applied over the spine; or, counter-irritation may be used by means of a mild mustard paste, applied over the whole length of the spine or over the neck and back of the head.

Other internal medication which may be administered with a view of palliating the uncomfortable symptoms, include opium, which may be administered if the child seems to suffer acute pain in the head, as evidenced by constant severe crying, and insomnia.

If there is restlessness and muscular twitching, and convulsions, the bromid of sodium should be given, in a dose of 0.30 gm. (5 grains), to a child 1 year old, repeated in four hours, if needed.

After the first week the iodid of sodium may be given with the hope (generally a vain one) of removing the products of inflammation at the base of the brain. A twentieth of a gram (about 1 grain) may be given three times a day to a child one year old. Large doses are of no value, and will do harm.

Liquid nourishment should be given in the form of milk, either plain or diluted with lime water, or peptonized. It should be given at regular intervals, both to relieve the thirst and to maintain the nutrition.

The internal use of remedies intended to destroy the bacillus has not found many advocates. If one were inclined to feel that the administration of such remedies increases the hope of recovery, one might administer creosote, in doses of 1/4 drop, repeated at intervals of three hours.

In view of the comparatively recent observation that hexamethylenamin has been found in the cerebrospinal fluid a short time after it has been taken by the mouth, it might seem desirable to administer this drug in tuberculous meningitis, but it is not reasonable to expect that such favorable results will follow its use in this disease as have been reported from its use in epidemic cerebrospinal meningitis.

The preventive or prophylactic treatment demands that all children should be absolutely separated from every individual suffering from pulmonary tuberculosis. In this way only can one feel confident that the disease may be avoided. Furthermore, as the tubercle bacilli are believed to be more or less present everywhere where human beings are found, by systematic cleansing of the mouth and throat, one may hope to avoid contamination with the bacilli.

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[*For other information see second page following reading matter*]

SATURDAY, SEPTEMBER 9, 1911

VIRCHOW'S GENEROSITY

It is well known that in the last years of his life Virchow was very much of a reactionary. He who, in his ardent youth, had been a fiery champion of democracy and a passionate advocate of the improvement of medicine and public hygiene in the broadest sense, in later years, as our German confrères have been not slow to remind us, became a typical caviler and a sort of cool devil's advocate in regard to many things of the utmost importance to the great preventive movement of our time.

There is no need to censure Virchow for his lukewarm attitude toward Darwinism. He was an expert anthropologist and craniologist and his views on natural selection and the descent of man were entirely his own affair. They did not hinder the growth of the doctrine of evolution. But it cannot be denied that Virchow's relation to the work of Koch, Behring, Loeffler and the other leading expositors of the bacterial theory of infection was one of smug civility and ill-concealed indifference, if not of positive *nil admirari*. The reason is not far to seek. Like all old men he was an inevitable conservative, and it did seem, at first blush, as if the modern theory of the blood-serum as the battle-ground of the infectious processes, in all appearance a revival of the humoral pathology of Hippocrates, would be likely to displace the "solidist" conceptions (*omnis cellula e cellula*) advanced by Virchow himself. It was natural enough that the old veteran should decline to wear "the foolish face of praise," since he could not foresee that Ehrlich would come to the rescue of his cellular pathology by showing that the seat of war is, after all, in certain specialized atom-groups belonging to the peripheral molecules of the cells themselves. Neither should we resent Virchow's disapprobation of the course of the United States in the Philippines. If, as President Andrew D. White once related,[1] even Mommsen the historian could not understand how we were driven to take possession of those islands, it is hardly likely that Virchow could.

A man has a right to be judged by the best that is in him, and we may contrast the ultra-conservative Virchow of the declining years, not so much with the "heaven-storming" youth who pitched into Bismarck about the typhus fevers in Silesia, as with the mature man of middle life who gave us those fine, catholic appreciations of Harvey (his favorite historical figure), Bacon, Morgagni, Glisson, Schönlein, Schliemann of the Trojan excavations and Pope Innocent III, the pioneer of the great hospital movement in the Middle Ages. We have spoken of his attitude toward this country during the Spanish-American war. It did not ruffle America in the least. Why? Because American physicians can never forget Virchow's classical tribute of praise to the work of the Medical Corps of the United States Army during the Civil War,[2] especially of the "critical, truly scientific spirit, open-mindedness, sane and practical common sense which gradually penetrated all circles of the American army administration, and with the wonderful cooperation of an entire nation, reach the high-water mark of humanitarian achievement in any great war on record." The publications of the United States Army Medical Department of this period made, he asserts, "a new era in the history of military medicine."

Perhaps, however, the most striking example of Virchow's enthusiasm and generosity of spirit is his noble tribute to Pasteur. When the great chemist died he was by no means a popular figure in Germany owing to the fact that, from a natural soreness over the reverses of his native country in the Franco-Prussian War, he had declined the degree conferred on him by the University of Bonn and other distinctions offered by the German government. In consequence he was frequently caricatured and belittled in certain quarters, and even Koch was, at first, anything but well-disposed toward his work. When Pasteur passed away in 1895, it devolved on Virchow, as president of the Berlin Medical Society, to pay the usual memorial tribute to the illustrious dead.[3] He began by pointing out that the newspapers (as usual) misrepresented Pasteur's position in science by hailing him as the discoverer of this or that bacillus. Pasteur's claims (and here Virchow's words begin to turn to flame) were of an entirely different order. His position in science is immortal, first, by his conquest of the doctrine of spontaneous generation; again, because he was the first to handle the bacterial theory of infection in "the grand style," and thence to attempt a working theory of immunity and a practical enlargement of Jenner's original scheme of preventive inoculation. It is certain, says Virchow, that the whole modern tendency of such inoculations owes its inception to Pasteur, and no physician, only a chemist, could have hit on his peculiar modes of experimentation. After enlarging on this theme, Virchow winds up in a tone of reasonable protest against the German misunderstanding of Pasteur's true position as a patriot. He reminds his fellow countrymen that Pasteur laid the foundations of his scientific work as a teacher in Strasburg, now a German city; that it was in Strasburg that he found his wife, and that he must have loved this place with his whole heart. That the loss of this place to his country should have affected him deeply, we who love our own country, said Virchow, should not hold up as a fault against him. When we consider how little enthusiasm Virchow had for the modern theory of infection and its consequences, this defense of Pasteur seems one of the finest actions of his life.

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[1] Century, N. Y., 1904-5, lxix, 311-312.

[2] Virchow: Die Fortschritte der Kriegsheilkunde, Berlin, 1874, p. 7.

[3] Virchow: Verhandl. d. Berl. med. Gesellsch, 1895, xxvi, 161.

THE CHARGE AGAINST DR. WILEY

When the charge against Dr. Wiley was first made public even his friends supposed that it could be at least sustained on a technicality. The investigation has brought out the fact that Dr. Wiley was not guilty of even the trivial technical violation that was claimed. The charge was that he had made a secret agreement with Dr. Rusby concerning the rate of compensation the latter was to get, based wholly on a letter which Dr. Wiley was alleged to have received from Dr. Rusby. This letter is reproduced in full elsewhere.[1]

It will be noticed that in this letter the agreement spoken of by Dr. Rusby was to be subject to the approval of the Department of Agriculture, or as he put it, valid "if approved by the department." This part of the letter was suppressed by the Committee on Personnel in submitting its charges against Dr. Wiley to Secretary Wilson. Nor was this all; it was proved that this letter had neither been received by Dr. Wiley nor sent to him. Dr. Rusby had written the letter, it is true, but it had never been sent. A carbon copy of the letter, however, found its way into Dr. Rusby's files and, with a mass of other material was sent by him to the Committee on Personnel when he was requested to furnish a copy of all his official correspondence. It was further brought out that the Committee on Personnel had the means of knowing that this letter had not been received by Dr. Wiley because he had sent a complete list of all the letters that he had received and had also stated that no personal letters had ever passed between him and Dr. Rusby on this subject.

To sum up, the case amounts to this: The charge against Dr. Wiley was that he had entered into a secret agreement with Dr. Rusby by which the latter was "to be paid an illegal rate, differing from the rate specified in the appointment." The facts were: No such contract was ever made; the letter on which the committee based its charge that such a contract had been made had never either been received by Dr. Wiley or sent by Dr. Rusby. While a letter on the subject had actually been written by Dr. Rusby, even had it been sent, it was perfectly plain that there was no idea of any "secret agreement," as it was specifically stated that the rate of compensation would be agreed to by Dr. Rusby only "if approved by the department." In spite of all this, the enemies of the chief of the Bureau of Chemistry used this letter which they had means of knowing had not been received by Dr. Wiley and, not content with that, they suppressed the very part of the letter which, even had it been sent, would have made it impossible for them to bring the charge against him of having entered into a "secret agreement" for the purpose of evading the law.

The enemies of the pure food law at Washington must be in desperate straits when they find it necessary to attempt to oust honest and efficient public servants by means of trumped-up charges of a trivial and technical nature based on manufactured evidence and on garbled and suppressed facts. Dr. Wiley and his associates have come out of the present investigation completely vindicated and more firmly entrenched than ever in the hearts of the American people.

While the investigating committee has adjourned temporarily and will not submit its findings for some weeks, the public, through the press, has already delivered judgment. Dr. Wiley is not only innocent of even the trivial technicality brought against him, but he has been shown to be the victim of as unprincipled a conspiracy as was ever manufactured against a competent and public-spirited official. Many interesting details have been brought out in this investigation that the public and the medical profession ought to know. Some of these appear elsewhere[1] in this issue; others will follow.

THE VENDER OF INTELLECTUAL NOSTRUMS

It was a notable warning which President Butler recently gave the graduating class of Columbia University, against the nostrum-venders, political, literary and religious—and he might well have added, the medical—all of whom now so dreadfully infest our American civilization. These, he well observed, are the men of "new ideas" (such ideas as Plato discarded many centuries ago as perverse); the men (and women) who preach "new thought" without ever having learned to think; the multitudinous advocates of change for the sake of change; of reforms springing from no need and growing out of no experience; the shallow, unqualified, half-baked horde who are letting loose on the land a torrent of talk, to the degree that "the educated man or woman of to-day has literally to struggle against being swept into the current of irrationalism."

Knowledge has come on our people in veritably cyclonic measure, while wisdom has emulated the snail in its progress. "The marvelous last half-century of science," continued President Butler, "has made absolutely no impression on the thinking habit. Science has destroyed many prepossessions and not a few beliefs; but it has not yet taught mankind to think. Our age is far less reflective than was the eighteenth or the first half of the nineteenth century; our people are now ever busy hunting for something new."

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[1] Propaganda for Reform department, this issue, page 913.

"The present age is certainly that of the crowd and the demagogue," continued the president of Columbia. The crowd, with its well-marked mental and moral peculiarities, is everywhere in evidence; and demagogues of all kinds din its ears with hungry cries. The art of demagoguery is easy, and it is quickly learned; and the rewards of its successful practice "have strange fascination for minds and characters that we would like to think in all respects worthy."

Thus has President Butler pilloried the literary, the political and the religious demagogue. We should for ourselves have prefixed the qualification "pseudo" to each of these adjectives. Nor are Butler's observations any the less applicable to the pseudomedical demagogue, and the amazing impression he makes on the crowd. Indeed, the offices of religious and medical nostrum-vender are quite generally combined in the one engaging personality. The "new-thoughter," for example, while piloting you skyward, will at the same time attend to your physical well-being—for a consideration. There are in point of fact, literally hundreds of cults—essentially psychopathic epidemics—in the United States that are thus dominated. It is unpleasant indeed to observe in them how often the abnormal, the insane even, have exerted, and now exert, a noxious influence on people who are, to begin with, evenly enough balanced. The pseudoreligious movements (which quite invariably undertake to heal also the body) have in common certain well-defined earmarks. Each despises and decries all the rest: With us, assures one leader, you shall find peace here and hereafter, with the cure of all your ailments; but as you hope to escape eternal perdition, have nothing to do with that shop across the way! Some of these cults are offshoots from others, enterprises originated and conducted by malcontent demagogues who have not had a fair share of the spoils from their erstwhile leaders. The demagogue in charge of each cult—its nostrum-vender-in-chief—insists incessantly and blatantly that its tenets are the only true ones; and its devotees will as insistently, and much more blindly, back him up. There never, by any chance, was a true system other than the particular one under consideration. Any given demagogue can never, by any accident, make a statement that is not consonant with the plain, unvarnished truth. Each demagogue strives, with most consummate assurance, to outdo all others in extravagant claims (such as are impossible in nature) to have achieved marvelous and miraculous results, especially in the cure of disease. But no statement any leader ever made is more marvelous than the gullibility with which the devotee has accepted it. "Far-fetched analogy, baseless assertion, the uncritical assimilation of popular superstitions, a great deal of prophecy after the event, much fanciful elaboration of detail, ringing the variations on a sufficiently complex and non-demonstrable proposition, cultivating a convenient vagueness of expression, together with an apologetic skill in providing for and explaining exceptions, the courage to ignore failure, the shrewdness to profit by coincidences and half-assimilated smatterings of science, and, with all, an insensibility to the moral and intellectual demands of the logical decalogue"—such, observes Jastrow, are the elements on which the medicoreligious nostrum-vender rides to most meretricious success.

Current Comment

LANOLIN NOT PROPRIETARY

As long ago as 1902, a court decision of great importance to physicians was rendered, which, curiously enough, seems to have escaped the notice of the medical profession. At that time, the court held that the word "lanolin," first applied to wool fat by the original patentees, was a general designation for that substance, and that this word became a non-proprietary name when the patent on the product expired. Although it is nine years since this decision was rendered, many physicians still avoid using the term "lanolin" and use the somewhat cumbrous title of the Pharmacopeia. To help remove the misapprehension that exists regarding the use of this word, the Council on Pharmacy and Chemistry has decided to list lanolin as a synonym for hydrous wool fat (adeps lanæ hydrosus) in New and Nonofficial Remedies.[1] Physicians can therefore use the shorter term, as it is now public property.

INFANTS' MILK DEPOTS AND THE RESULTS OF THEIR OPERATION

Following a plan carried out in 1908 and 1909, Dr. J. W. Kerr[2] of the Public Health and Marine-Hospital Service, assisted by Drs. Henry L. Coit and Roland G. Freeman (the three constituting a committee of the American Association of Medical Milk Commissions), has compiled data concerning the operation of infants' milk depots in the United States in 1910. The results, while interesting, are not conclusive as to the exact value of these depots, the principal and important reason being the lack of accurate vital statistics in many of the states and cities where this work is carried on. Data were received from forty-three institutions located in thirty cities, and while the general object of all the depots is the protection of infant life, on account of the lack of uniformity of specific objects and of methods, and incompleteness of statistics, the results in the different cities are not comparable in such a way as to bring out the true value of this work. There was difficulty in determining in every instance whether it is the endeavor of the institution to accomplish good by meeting the purely hygienic needs of infants or simply to relieve the distress brought about by poverty. The data compiled, however, cover, among other things, the following points: object of institution; method of operation and manner of maintenance; instruction to mothers in infant hygiene, given by physicians or nurses, in the homes or in central consultations; distribution of the milk by agencies, free or otherwise; proportions of infants who were ill and well, number fed, average age, quality and preparation of milk, modifications, etc., and, chief among the objects of inquiry, the mortality-rate of infants under 1 year of age, and among children fed on dispensary milk one month or over during the year. The tabulations of this report show that the mortality-rate for infants under 1 year varied from 12 to 30 per cent., and in children fed on dispensary milk for one month or over during the year, from no deaths to 20 per cent. These figures may or may not prove much, but the information obtained is of interest and emphasizes the importance and necessity of uniformity of methods in conducting these institutions, and the supreme importance of accurate and uniform reports on births and deaths. On this latter point the report says: "The correct infant mortality-rate is the ratio of deaths of infants under 1 year of age to the number of children born alive during the year. In the absence of registration of births in many cities, therefore, no such rate can be determined, and since registration of births in the great majority of cities is very incomplete, any ratio based on the returns would be misleading. The data presented indicate how desirable it would be to know the correct infant mortality-rate, and emphasize in some measure the importance of the accurate registration of both births and deaths." It might also be added that until these two objects are attained and the various agencies for infant welfare are better coordinated, much effort and expenditure in this direction will be wasted.

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[1] Page 902, this issue.
[2] Public Health Reports, Aug. 18, 1911.

THE "CASE" OF THE PHYSICIAN

The physician and the lawyer both deal with "cases"; but while the latter has not learned to call his client a "case" (except jocularly), the former often seriously applies to his patient the word which properly signifies the given instance of disease or the given group of facts constituting the condition. The misuse of the term is an unfortunate one, not so much for the language as for the profession. The language has assimilated without disaster many more violent metonymies; but the habit of mind to which this particular figure of speech bears witness is one which works against mutual sympathy and confidence between the physician and the patient and even against real professional usefulness. The surgeon who really thinks of his patient as a "case" is the one who is inclined to be satisfied with a mere operative recovery; the physician with the same tendency of mind is likewise inclined to be satisfied if he has demonstrated his own skill, even if he has not penetrated far enough into his patient's characteristics and circumstances to know the ultimate causes of the disease and the probability of its recurrence. Whatever the scientific attainments of a physician, there is nothing which more surely alienates the public from him than this tendency to regard his patient as a mere living illustration or embodiment of disease or injury. The physician himself may be the last to become aware of this feeling, for it is not often so adequately voiced as it was by one mother, who, exasperated by the constant reiteration of "the case," exclaimed: "Dr. ——, I don't want to hear another word about the 'case.' This isn't a case; this is my baby." We suggest once more[1] that it is well to beware of confusing the "case" and the patient.

Medical News

ARIZONA

Personal.—Dr. Henri Ap John, Yuma, physician in charge of the Yuma reclamation project and in charge of the reclamation service hospital, has broken down from overwork, and is taking a few weeks' rest in southern California.——Dr. George F. Manning, Flagstaff, while stepping off a train, August 4, turned his foot, causing a sprain of the ankle.——Dr. Charles L. Edmundson, formerly mayor of Bisbee, has retired from practice and moved to Los Angeles, Cal.——Dr. Carl Lund, Douglas, has resigned from the medical staff of the Copper Queen and will practice in Oklahoma City.

CALIFORNIA

Laboratory for Hospital.—Mrs. Harriman, widow of the late E. H. Harriman, has given $50,000 for the establishing of a bacteriologic and pathologic laboratory to be attached to the present Southern Pacific General Hospital, San Francisco. It is to be known as the Harriman Memorial Laboratory.

Eradication of Squirrels.—A meeting was held in Modesto, August 26, at which the farmers were urged to help along the eradication of squirrels by establishing local poison squads. The purpose of establishing these squads is to prevent the spread of the squirrel-infested area into the foothills by clearing of squirrels a territorial belt in advance of the present area which is known as the suspected infected area, thereby making an additional barrier.

DISTRICT OF COLUMBIA

Personal.—Dr. Isadore Burman has sailed for Europe.——Dr. William F. R. Philips left August 22 to assume the professorship of anatomy in the medical department of the University of Alabama, Mobile.

Veiled Prophets' Committee.—The following is the medical committee announced for the Veiled Prophets' reception, September 25: Dr. Floyd V. Brooks, chairman; Dr. Lewis A. Walker, vice-chairman; Drs. Wade H. Atkinson, George K. Baler, Grafton D. P. Bailey, William H. Brandenburg, Clarence R. Dufour, Leon L. Friedrich, Frank E. Gibson, Edward M. Hasbrouck, Joseph Ernest Mitchell, William O. Owen, Ralph A. Quick, Edward G. Seibert, Lewis H. Taylor, Clarence A. Weaver and Frederick Yates.

GEORGIA

Personal.—Dr. J. Calvin Weaver, Atlanta, has been appointed surgeon of the Federal Prison, Atlanta, vice Dr. Alfred L. Fowler, resigned.——Dr. R. C. Orr, Athens, has been appointed a jury commissioner for Clarke County.

District Association Meeting.—The fifth annual meeting of the Eighth District Medical Association of Georgia and the Wilts County Medical Society was held in Washington, August 16, under the presidency of Dr. Richard J. Robins, Siloam. The following officers were elected: President, Dr. Thomas J. Wills, Washington; vice-president Dr. L. E. Roper, Comer, and secretary-treasurer, Dr. Daniel H. DuPree, Athens.

Work Done at Mount Alto.—The annual report of the State Tuberculosis Sanatorium, Alto, states that 180 patients were cared for during the year with 60 in residence, at its close. One of the main features of the institution is educational and the prevention of the disease is the point which the authorities desire to attain. An appropriation of $50,000 was passed by the House of Representatives, $25,000 of which is available next year and $25,000 in 1913. This money will be used for new buildings and sleeping quarters.

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[1] See Bad English, Queries and Minor Notes, THE JOURNAL A. M. A., Dec. 22, 1906, p. 2108.

ILLINOIS

Hospital Attendants Suspended.—Plans of seven attendants of the Elgin State Hospital, to strike, August 29, because they were not allowed one day off each week, were frustrated by their prompt suspension from the state service.

Personal.—Dr. George S. Rainey, Salem, was elected surgeon at the twenty-ninth annual Illinois Soldiers' and Sailors' Reunion held in Duquoin, August 26.——Dr. Isaac F. Freemmel of the staff of the Elgin State Hospital has been temporarily transferred to the staff of the Illinois Hospital for the Feeble Minded, Lincoln.

Fire at Cook County Institutions.—A fire which occurred in the vacant west wing of the Cook County Institutions, Dunning, August 27, necessitated the removal of about two hundred patients from the Cook County Insane Hospital. They were removed without casualty under the care of Drs. Carl F. W. Eberlein, chief of the medical staff, J. A. Smith and Robert H. Rea. The fire caused a loss of $5,000. The medical staff and nurses were commended by the president of the county board for their excellent work in removing patients from the building during the fire.

Chicago

Theft of Medical Books.—Joseph Suffrin, who is said to have started a preparatory medical school with the books of reference stolen by him from the John Crerar Library; was sentenced to six months' imprisonment in the Bridewell, August 29.

Home from Europe.—Dr. and Mrs. Nathan S. Davis and daughter, and Dr. and Mrs. Edward L. Moorhead and son, and Dr. and Mrs. Edwin B. Tuteur and daughter, Dr. William H. Falker, Dr. and Mrs. Clarendon Rutherford, Dr. William C. Wermuth and Dr. Robert Von der Heydt have returned from Europe.

Fire in Hospital.—Fire on the fifth floor of St. Bernard's Hospital, August 25, caused considerable excitement but was not attended by any casualty to patients.——Fire in a building on the opposite side of the street caused a panic in the Practitioners' Hospital, August 30, which was stopped only by strenuous and cool-headed work on the part of the nurses.

Home for Consumptives.—The Jewish Consumptive Relief Society has purchased a tract of land bounded by Belmont, North Fortieth and North Fifty-First Avenues and School Street, on which an institution for the care of indigent consumptives will be started. It is planned to erect first an administration building to cost about $15,000 and several shacks at a cost of $2,000 to $3,000 each.

IOWA

Personal.—Dr. Edward S. Bowman, Davenport, recently underwent operation.——Dr. Joseph C. Collester was seriously injured in a collision between his automobile and a freight train near his home in Spencer, recently.——Dr. Gilbert Baldwin, Ruthven, was struck by an automobile recently and sustained painful injuries.——Dr. David E. Beardsley has been appointed a member of the staff of St. Luke's Hospital, Cedar Rapids, vice Dr. Walter S. King, deceased.

KANSAS

Personal.—Dr. Oliver J. Taylor, Wichita, is reported to be ill at his home.——Dr. J. R. Perdom, Wetmore, has been appointed a member of the advisory commission of the State Sanatorium for the treatment of tuberculosis.——Dr. James Stewart has been appointed city physician of Topeka, vice Dr. Henry B. Hogeboom, resigned.——Dr. Charles H. Ewing, Larned, has been appointed head physician for the Modern Woodmen of America for Kansas.

KENTUCKY

Gift to Kentucky Tuberculosis Association.—The Kentucky association for the cure and prevention of tuberculosis has received a gift of $500 from Mr. T. Coleman DuPont of Wilmington, Del.

Hospital Patients Moved.—The staff and nurses of the Louisville City Hospital safely removed 136 patients for six squares into temporary quarters to be occupied during the erection of a new hospital building on the site of the old.

Personal.—The recent quarterly meeting of the Kentucky Midland Medical Association, held in Louisville, closed with an elaborate banquet given by Dr. Louis Frank in honor of Dr. Urbane V. Williams, Frankfort, first president and oldest member of the association.——The bungalow of Dr. Edward R. Palmer, Louisville, at Harrods Creek, was destroyed by fire August 10, with a loss of several thousand dollars.

LOUISIANA

Benefit for Charity Hospital.—Plans for a mammoth benefit for the Charity Hospital, New Orleans, are in progress. The object of the benefit is the collection of funds for the erection of an isolation building for contagious diseases. The hospital will commemorate its centennial of state ownership in October.

Gifts to Presbyterian Hospital.—At a meeting of the board of managers of the Presbyterian Hospital, New Orleans, August 16, the receipt of a check for $20,000 from the estate of the late W. R. McKowen, Jackson, was announced. It was decided by the board to establish a McKowen Memorial Charity ward in the institution.——A complete *x*-ray department under a skilled radiologist is to be put in this month.

Personal.—Dr. Edward L. McGehee, Sr., has been elected president and Dr. John L. Robinson vice-president of the board of health of Hammond.——Dr. Charles Chassaignac has been made chairman of the executive committee to make up plans and carry forward the work of cleaning and sanitation in New Orleans in cooperation with the city and health authorities.——Dr. Creighton Wellman has been made professor of hygiene and preventive medicine in Tulane University.

MARYLAND

Baltimore

New House Staff.—The following constitutes the new staff of house officers of Johns Hopkins Hospital: medicine, Drs. Arthur E. Bloomfield, Ernest G. Grey, Helen W. Smith and Julian M. Wolfsohn; gynecology, Drs. Veader N. Leonard and Walter G. Sexton; surgery, Drs. Barney Brooks, Hans Lisser, John A. C. Coston and William A. Fronty, and obstetrics, Dr. Arthur S. Rosenfeld.

Personal.—Dr. William H. Welch returned September 1 after an absence of eleven weeks spent in traveling through Alaska and Canada.——Dr. William B. Treat was operated on recently for appendicitis.——Drs. Henry O. and A. J. Neilson Reik have started for Europe.——Dr. E. Longsdorf has been appointed physician to the Isthmian Canal Commission with station at Panama.——Dr. Howard A. Kelly was operated on at Rochester, Minn., August 31, for adhesions from old gall-bladder inflammation.——Dr. G. Halsted Boyland has returned from Europe.——Dr. Arminius C. Pole was stunned by lightning which wrecked the upper floor of his house during a severe storm, August 28.

MASSACHUSETTS

Bequests.—By the will of the late Miss Cornelia Francis Forbes, Westwood, $1,200 is bequeathed to the Vincent Memorial Hospital, Boston, and $300 to the Convalescents' Home, Milton.

Personal.—Dr. Edwin M. Murphy, Lowell, has returned from Europe.——Dr. Paul Carson head of the division of school hygiene of the health department of Boston, has resigned and will locate in Michigan.——Dr. Patrick J. Hughes has been appointed a member of the board of health of Lawrence, vice Dr. John H. Tobin, resigned.

NEW YORK

New York City

Hospitals for the City.—The city has filed plans for two four-story concrete hospital buildings on North Brother Island. The estimated cost of these buildings is $100,000.

Personal.—Dr. Fred H. Albee has been appointed professor of orthopedic surgery at Vermont Medical College.——Dr. Abraham A. Brill and Dr. and Mrs. John Thelberg have sailed for Europe.

New Pavilion for Measles.—The Health Department will erect a pavilion for the isolation of measles at a cost of more than $200,000 on the grounds of the Willard Parker Hospital, at the foot of East Sixteenth Street.

Money for Charity.—The contest against the will of Walter Duryea has been withdrawn and the terms of the will will be complied with. Under this will the Nassau Hospital at Mineola receives $25,000 outright and $75,000 when the sister of the testator dies; the Children's Home at Mineola, $5,000; Roosevelt Hospital, $15,000 to establish three memorial beds; Montclair Convalescent and Fresh Air Home, $2,000. Other philanthropic institutions were also remembered.

Rabies Shows Increase.—Since January the Health Department has had examined 3,469 animals for rabies, and fully 10 per cent. have been found to have the disease. For the corresponding period in 1910, 3,010 were examined and 172 cases of rabies were found. Besides the 279 people who have received Pasteur treatment in the city since January, 420 persons outside the city have been treated by the Health Department. Last year 189 received treatment in the city, and 437 persons outside.

Decline in Typhoid.—For eight weeks ending September 2, 1,042 cases of typhoid fever have been reported to the Health Department from all boroughs of the city. This is an increase of 241 over the cases reported in 1910. During the week ending September 2, only 121 cases were reported as against 158 for the same week last year. This seems to indicate that a normal point has been reached in the epidemic. The Health Department declines to go into the probable cause of the epidemic this summer except to say that the water-supply, is not responsible for the outbreak. Ten milk companies which were under suspicion in connection with the epidemic on the upper West Side have shut off their supplies.

New York Milk Committee Plans New Work.—The Committee for the Reduction of Infant Mortality of the New York Milk Committee feels that the results attained by the united efforts of the various agencies in combating infant mortality due to diarrheal diseases now plans to turn its attention to congenital troubles, which next to diarrheal diseases, cause the largest infant mortality. The committee has taken charge of 1,000 expectant mothers and will endeavor to bring all of the community's resources to bear which may enable the mothers to give birth to well children strong enough to combat the numerous ills that await them. An arrangement has been made with the Russell Sage Foundation which will detail a special nurse who will devote all her time to this work. The mothers will be given a careful physical examination and will be instructed in methods of proper care of themselves preparatory to the coming of the children. When an expectant mother is forced to overwork help will be provided for her. Arrangements will be made for these women to go to the hospital and no midwives will be permitted to attend these cases. After confinement adequate care will be provided for the mothers and the children will be referred to proper milk stations. Last year about one-third of all infant deaths occurred during the first month of life and the committee will endeavor to prove that this percentage can be materially lowered. If this proves to be true an active campaign along these lines will be instituted next summer.

NORTH DAKOTA

District Association Meeting.—At the annual meeting of the Grand Forks District Medical Association held in Grand Forks the following officers were elected: President, Dr. Anders A. Westeen, Grand Forks; vice-president, Dr. John Montgomery, Ardoch; secretary, Dr. George M. Williamson, Grand Forks; treasurer, Dr. Charles S. Marsden, Carrington, and delegates of the State Society, Drs. Henry H. Healy, Grand Forks, and John S. Countryman, Grafton.

PENNSYLVANIA

Hospital Buys Farm.—The Kensington Dispensary for the Treatment of Tuberculosis purchased a farm in Upper Providence Township for $6,994.08.

Personal.—Dr. John A. McKenna, of Lansdowne, has returned from Europe.——Dr. Malcolm Z. Gearhart, Reading, who was operated on for appendicitis in the Jefferson Hospital at Philadelphia, is reported to be improving.

To Prosecute Unregistered Midwives.—At a meeting of the Clarion County Medical Society on July 25, resolutions were passed that the society act as prosecutor in all cases of unregistered midwives, the evidence to be furnished by any member of the society.

Endorses Wiley's Work.—Blair County Medical Society at its meeting in Altoona, August 23, adopted resolutions expressing its belief in the professional skill of Dr. Harvey W. Wiley, extending their moral support in his efforts to protect human life and hoping that "no possibility of technical fault may cut short his most useful career."

Hospital Fire.—A fire caused by crossed electric wires in the Panther Creek Valley Hospital resulted in one death and $10,000 damage. The Reading and Lehigh Coal and Navigation Companies sent special trains to convey fire companies to the scene and the flames were subdued after the roof had been destroyed and the third story gutted. Thirty-eight patients were rescued.

Censorial District Meeting.—The sixth annual meeting of the Fifth Censorial District Medical Society was held at Waynesboro July 25, and the following officers were elected: president, Dr. J. Burns Amberson, Waynesboro; vice-president, Dr. Harry A. Spangler, Carlisle; secretary and treasurer, Dr. George E. Holtzapple, York. The next meeting will be held at Mount Holly Springs, in July, 1912.

Philadelphia

Personal.—Dr. Walter L. Pyle has recently returned from Europe.——Drs. John F. McCloskey and Fred Stahley were seriously injured when their automobile ran into a tree which had been blown across a drive in West Fairmount Park in a storm August 18.

Quarantine on Brandenburg Lifted.—Twenty-nine hours after quarantine had been placed on the steamer *Brandenburg* because of the illness of a passenger with symptoms suspiciously like cholera, the steamer and its passengers were released as cultures taken showed a negative result.

Hospital Sells Building.—The Methodist Hospital has sold 1015-17-19 Chestnut Street, a lot 69x180 feet, for a consideration reported to be $425,000. This building, together with the Chestnut Street Opera House adjoining, was bequeathed to the Methodist Hospital about 15 years ago by the will of Colonel Bennett.

Playground Work Ended.—The public school playgrounds, conducted in the yards of the public schools and under the direction of the board of education closed August 31. The grounds were open six days of the week for eight hours each day with at least a principal and a teacher in attendance. Beside healthful supervised play, instruction in small arts, such as basket weaving, hammock weaving, sewing, etc., was given. Hammocks almost without number were made and given to hospitals, recreation piers and municipal playgrounds in various parts of the city.

SOUTH DAKOTA

Personal.—Major Hans M. Finnerud, M. C., N. G., S. Dak., Watertown, has been made chief surgeon with the rank of colonel.——Dr. John R. Nilsson, Lead, who was operated on recently in Omaha, has recovered.

TENNESSEE

Commercial Men Form Health Association.—The Tennessee Commercial Men's Health Association, organized at Chattanooga August 14, with an initial membership of more than two hundred.

Physicians Victimized.—The police arrested in Chattanooga, August 26, a man giving his name as J. D. Cooper, who is said to have posed as a doctor and to have victimized several local physicians by inducing them to endorse his checks.

President to Lay Hospital Cornerstone.—Excavation for the Lincoln Memorial University Hospital, Knoxville, the cornerstone of which will be laid by President Taft, September 18, has been begun. The building will be four stories in height and will cost about $13,000.

TEXAS

Money for Hospital.—By the will of the late John W. Gates $150,000 is devised to the Mary Gates Memorial Hospital, Port Arthur.

Personal.—Dr. John O. McReynolds, Dallas, has returned from England.——Dr. Albert W. Nash, Dallas, has been appointed health officer of Nash, succeeding Thomas B. Fisher, resigned.——Dr. Albert Woldert, Tyler, sustained a heavy loss by the burning of a building owned by him in Plainview, August 22.——Dr. Joseph C. Darracott, San Antonio, for several years physician at the Schaefer Hospital, has resigned and will be located in Deming, New Mexico.

Two Tuberculosis Colonies.—The State Department Commission for the selections of sites, erection of building, etc., has made sufficient progress to insure the completion of at least one colony within the next year. It has purchased a tract of land on the Concho River near Carlsbad on which a colony will be established and the other is to be located at the old Fort Clark reservation. The specifications call for the establishment of a colony to cost about $50,000, and to accommodate at least sixty patients.

UTAH

Personal.—Dr. Elmer E. Hinckley, Provo, has returned from Europe and will practice in Salt Lake City.——Drs. Clarence M. Clarke, Provo; Albert G. Stoddard, Spanish Fork; Horace C. Holbrook, Lehi; Frank E. Winter, Payson, and Philemon M. Kelly, American Fork, have been appointed members of the board of health of Utah County.

WEST VIRGINIA

State Board Election.—At the annual meeting of the State Board of Health, Dr. Robert E. Vickers, Huntington, was elected president, and Dr. Hugh A. Barbee, Point Pleasant, was reelected secretary for the firth time.

Personal.—Dr. Albert E. Nolte has been appointed health officer of Wheeling, vice Dr. Charles A. Barlow, resigned to become superintendent of the State Hospital for the Insane, Spencer.——Drs. T. Jud McBee, Elkins, and Irvin Hardy, Davis, purchased the City Hospital, Morgantown, and will tear down the old building and erect a hospital on the site.

WISCONSIN

Improvements at State Sanatorium.—The state board of control, on August 25, awarded contracts amounting to nearly $10,000 for improvements at the State Tuberculosis Sanatorium, Wales.

Personal.—Dr. C. William Stoelting, Oconto, has recovered from his recent operation for appendicitis.——Dr. Howard D. Eaton, who has been practicing in Chihuahua, Mexico, for seven years has returned and located in Shopiere.

Sanatorium Agreement.—At a conference held August 23 between representatives of the county and city of Milwaukee to devise a method of cooperation in the fight against tuberculosis, an agreement was reached whereby the county will lease from the city the Greenfield Sanatorium at Wauwatosa. The institution is to be under the supervision of Dr. George H. Ernst, at present superintendent of the city tuberculosis institutions. New buildings are to be erected which will increase the capacity of the institution to 100.

GENERAL NEWS

Antityphoid Vaccination Compulsory.—By recent order of the Secretary of War, on recommendation of the surgeon general, antityphoid vaccination is made compulsory for all officers and men of the army under 45 years of age.

Rock Island Surgeons Meet.—The ninth annual meeting of the Surgical Association of the Rock Island Lines will be held in Colfax, Ia., September 13 and 14, under the presidency of Dr. Samuel C. Plummer, Chicago, chief surgeon of the system.

Pay of the Hospital Corps Increased.—The recommendation of the surgeon general of the army that the pay of noncommissioned officers of the Hospital Corps be advanced to the scale paid non-commissioned officers in other staff departments, has been approved by the general staff.

Mouth Hygiene Meeting.—At the meeting for organization of the National Mouth Hygiene Association, held in Cleveland, O., Dr. Eugene H. Porter, commissioner of health of New York City was made first vice-president; Dr. William A. Evans, former commissioner of health of Chicago, second vice-president, and Dr. Oscar Dowling of Shreveport, secretary of the Louisiana State Board of Health, third vice-president.

American Life Convention.—The medical section of the American Life Convention will hold its annual meeting in Pittsburgh, September 20, the day before the opening of the general *convention*. Among the papers announced to be read are "Transmission of Tuberculosis Through Fetal Life," by Dr. Harold C. Miller, medical director of the Pittsburgh Life and Trust Company; "The Healed Tuberculous Lesion from a Life Insurance Standpoint," by Dr. G. W. Parker, medical director of the Peoria (Ill.) Life Insurance Company; "Blood-Pressure," by Dr. Henry Wireman Cook, medical director of the Northwestern National Life Insurance Company, and "Nervous Diseases as Applied to Life Insurance" by Dr. John S. Turner, medical director of the Southland Life Insurance Company. Medical directors, examiners, actuaries and officials of life insurance companies are invited to attend this meeting and to participate in the discussion. Dr. Frank L. B. Jenney, Chicago, is secretary of the section.

International Manifestation in Honor of Sir Patrick Manson.—A committee has been organized to do honor to the one who has been so largely responsible for the progress realized in the knowledge of diseases of tropical countries, Sir *Patrick* Manson, the movement for the international manifestation having been started in France. The announcement states that the creation of schools or institutes of tropical medicine is also due to his initiative genius. It is proposed to present him with a portrait medal, in gold, the work of Dr. Paul Richer, professor of anatomy at the Beaux-Arts in Paris. Subscriptions may be sent to Asselin and Houzeau, publishers of the *Archives de Parasitologie*, place de l'Ecole de Médecine, Paris, France, or to Mr. James Cantlie, 140 Harley St., London, W., England. A bronze replica will be sent to each one who subscribes $5 and a silver one for twice this subscription or more. The forty-five members of the committee represent the leading countries of the globe: the list includes Drs. W. H. Welch, G. N. Calkins, F. G. Novy, C. W. Stiles and H. B. Ward of this country.

LONDON LETTER

(From Our Regular Correspondent)

London, Aug. 26, 1911.

The Falling Birth-Rate

The lowest birth-rate on record has once more been reported. For the quarter ending June, 1911, the births were in the proportion of 25 per thousand of the population, which is 3 below the mean birth-rate in the preceding ten second quarters and the lowest recorded since the establishment of civil registration. The death-rate for the quarter was also unusually low—13.3 per thousand, which is 1.3 below the mean death-rate in the preceding second quarters. Infant mortality was in the proportion of 91 per thousand births under the age of one year. This is 15 below the average of the preceding ten quarters and is the same as that recorded in the second quarter of last year, which was the lowest recorded. The marriage rate also was unusually low—10 per thousand of the population against an average of 11.4 in the preceding 10 years.

The Antituberculosis Campaign

A movement is in progress for the establishment of tuberculosis dispensaries, of which *there* are a *few* in *London* and other parts of the country. One of the main features of the treatment is the administration of tuberculin. It is claimed that as the dispensaries receive the cases earlier than sanatoriums and their upkeep is much less expensive they are a better means of coping with the disease. Moreover, there is not sanatorium accommodation in the country for a tenth of the cases of tuberculosis. On the other hand, some question the excellent results which are claimed for the dispensaries. The diagnosis is often based on the reaction to tuberculin. But, as it has been shown that a large proportion of healthy soldiers react to tuberculin, the reality of the alleged cures is questioned. An appeal is now being made for $500,000 to establish tuberculosis dispensaries in London and the response has been encouraging. At the recent tuberculosis conference Mr. Waldorf Astor read a very important paper on the cost of tuberculosis. He showed that when the insurance scheme now before Parliament is fully developed some $50,000,000 will be spent every year on the sick. Of this over $15,000,000 will be required on account of tuberculosis alone. In Ireland, a country in which tuberculosis is very prevalent and in which the disease has shown no such decline as has been manifested in *England in recent years*, a *gratifying improvement* is at last apparent. The death rate from tuberculosis has fallen from 2.7 per 1,000 in 1907 to 2.6 in 1908, 2.4 in 1909, and 2.3 in 1910.

The Study of Pellagra

The second field commission for the investigation of pellagra has just left London for the Continent. It is composed of Dr. Louis *Sambon, lecturer*, London School of Tropical Medicine and parasitologist to the Wellcome Physiological Research Laboratories, and Dr. Albert T. Chalmers, lecturer on pathology and animal parasitology, Ceylon Medical College. These two members of the commission will be joined *en route* by Professor Haase, of Memphis, U. S. A., Dr. Cole, of Atlanta, U. S. A., and Dr. Martinez, of Yucatan, Mexico. The commission will proceed to the study of the epidemiology and etiology of pellagra in Hungary, the Austrian Tyrol, Spain, and the south of France. The governments of Austria-Hungary and of Spain have shown interest in the work and have granted every facility for prosecution of the study. Mr. H. S. Wellcome defrayed all the expenses of the present field commission. The work in Italy in the spring of 1910, by Dr. Louis Sambon, has gained many converts to the belief that pellagra is not due to eating *damaged* maize, but to a parasitic disease conveyed by the bite of a fly—a belief which has been seriously taken up by several observers, particularly in the United States. The field commission is to visit the pellagra-infected districts of Transylvania, the Austrian Tyrol, and the Asturias in Spain.

The Great Railway Strike

The railway strike which has happily ceased after a few days is an event unparalleled in our industrial warfare and threatened to produce quickly suffering of appalling magnitude. All the great railway lines in the kingdom, with one exception, were held up and the starvation of the great towns was only a matter of days. Another evil was the insanitary condition due to the impossibility of removing garbage. In Liverpool, where the greatest disorder occurred, the last difficulty was considerable and the death-rate was doubled. Even the hospitals had to complain to the Lord Mayor, stating that they would have to close their doors if the necessary supplies were not allowed to pass through by the strikers. In London also some of the hospitals suffered great inconvenience and one had to curtail its work on account of shortage of supplies. One issue of the *British Medical Journal* had to be reduced in size as the necessary paper could not be obtained.

Epidemic of Cerebrospinal Meningitis

A serious outbreak of cerebrospinal meningitis has occurred in Devon and Cornwall; 30 cases scattered throughout various districts have been reported and fresh cases are occurring daily. Five deaths have already taken place.

BERLIN LETTER

(*From Our Regular Correspondent*)

Berlin, Aug. 18, 1911.

The Heat Wave

The intense heat during the last weeks has claimed many human victims, a condition which to date has been known to us only from American newspapers. In Berlin and elsewhere in Germany deaths from sunstroke have been reported daily and also numerous deaths from drowning. Thus, in the province of Silesia, during the last three weeks not less than ninety-two persons drowned while bathing, and twenty-eight died from heatstroke.

Congress for Race Hygiene

Of the many congresses which have been held in Dresden this summer, during the International Hygiene Exhibition, the Congress for Race Hygiene had a special interest, as a special race hygiene section in the exhibition had been arranged by Professor von Gruber of Munich, who lectured at the congress. He made clear that for each new generation a considerable number of the individuals are failures and that only a few attained high physical and mental standards. If an elevation of the average human being could be accomplished, a bettering of human conditions could be produced. The last century was under the sway of the dogma that all men are born equal; this had led to an overvaluation of the environment. It is certain that the environment is sometimes of great importance to the development of the individual; this is shown, for instance, by the variation of plants induced by changes in the conditions of growth. As a whole, however, the improvement, the social reforms, cannot essentially improve the race, because such improvements cannot be inherited and because the environment can never develop in an individual any characteristic the germ of which was not implanted by heredity The environment can often suppress these inherited tendencies, but it cannot add anything to them. Much more important than the environment is the inherited complex of tendencies. Race hygiene is needed to promote the regeneration of the strong and to check that of the weaker elements.

The Swedish social economist, Professor Fahlbeck, attacked energetically the so-called neomalthusianism. He characterized the efforts to check the natural growth of the population as agitation for race-suicide.

Sick-Benefit for Mine Workers

Among the labor organizations, the Westphalian-Rhenish Mine Workers' Central Union occupies a remarkable position by reason of its large membership and its activities. The report for 1910 gives a membership of about 350,000. The total number of cases of disease entailing inability to work numbered about 212,000, as against 226,000 for 1909. In frequency, rheumatism of the muscles and joints stands first; diseases of the digestive organs come next; the number of cases of appendicitis increased from 459 to 500. The report says that "this higher figure can probably be explained by the fact that appendicitis is in the foreground of medical interest and essential improvement has been made in early diagnosis. It is improbable that the increasing number of these cases offers a support for the claims of the vegetarians to the effect that it is due to the increase in the consumption of meat." There were 704 fatal accidents due to the employment, including one case of gas poisoning. The number of injuries due to mechanical causes shows a continued increase, reaching the number of 57,179, as against 54,799 in the preceding year, but the number of deaths resulting from these accidents shows a considerable decrease, a fact undoubtedly due to the improvements in mining technic. The Bochum central organization has 800 branch offices and has two large hospitals, one for diseases of the lungs and one home for convalescents. During the year, 337 general practitioners and eighty-six specialists took care of the sick, and for the treatment of the sick members about \$4,000,000 (16,400,000 marks) was expended, of which about \$2,500,000 (9,700,000 marks) was paid as sick-benefit, about \$800,000 (3,200,000 marks) was hospital expenses, about \$350,000 (1,500,000 marks) for medicine, and about \$500;000 (2,000,000 marks) as fees for physicians. This organization provides for sick-benefits and old age and invalid pensions. The income of these three departments amounted in 1910 to about \$14,000,000 (56,100,000 marks), as compared to \$13,500,000 in 1909, and the expenses were \$10,000,000, as compared to \$9,500,000 in 1909. The balance-sheet of the three departments totaled \$43,000.000 (173,000,000 marks), as compared to \$35,500,000 (150,000,000 marks) in 1909.

End-Results in the Treatment of Tuberculosis

The official insurance bureau of the Hansa cities (Lübeck, Bremen and Hamburg) has published a report of the results *obtained in the thirty-three sanatoriums supported by this* bureau. In this report a special interest is attached to the figures dealing with the ultimate outcome of the treatment of pulmonary tuberculosis. Of the 37 male patients treated in the sanatoriums during 1895, suffering from lung phthisis, 56 per cent. had died before the end of 1910; 8 per cent. were unable to work and 13 (36 per cent.) had full earning capacity, but three in this group had taken more than one course of treatment. Of the 19 female patients treated in 1895, 5 (28 per cent.) had died before the end of 1910; 5 per cent. were unable to work, and 12 (67 per cent.) were fully able *to work. Two of the latter had taken repeated treatment.* Of the 99 male patients treated during 1896, 33 (35 per cent.) had died; 5 (5 per cent.) were incapacitated; 52 (56 per cent) were fully able to work; of the latter, 17 (18 per cent.) had taken repeated treatment, and 4 (4 per cent.) were only partially able to work. Of the 47 female patients treated during the same year, 4 (9 per cent.) had died; 1 (2 per cent.) was unable to work; 30 (68 per cent.) were able to work, of whom 7 (16 per cent.) had taken repeated treatment; 9 (21 per cent.) were partially able to work. Of 164 male patients treated during 1900, 39 (25 per cent.) had died before the end of 1910; 12 (8 per cent.) were unable to work; 84 (53 per cent.) were fully able to work; of these, 23 (15 per cent.) had taken repeated treatment; 22 (14 per cent.) were only partially able to work. Of the 132 female patients, 15 (12 per cent.) had died; 11 (9 per cent.) were unable to work; 69 (57 per cent.) were able to work, of whom 24 (20 per cent.) had taken repeated treatment; 26 (22 per cent.) were partially able to work. From the standpoint of the ultimate outcome, it is important to note the causes of the disease in the individual patient. The cases are classified in four groups:

1. Slight infection, limited to a small area of one lobe, and especially to the apex.
2. Cases in which the infectious process exceeded the limitations of Group 1; involving one or both sides without any pronounced dulness or cavity formation.
3. Those showing consolidation of one or more lobes or signs of cavity formation, or pronounced tuberculosis of the larynx.
4. Protracted pleurisies or suspicious catarrh of the larynx without any pronounced findings in the lungs.

The total number of male patients belonging to Group 1 who were treated more than four weeks in the sanatoriums during the years 1895 to 1904 were 471, of whom 117 (25 per cent.) had died before the end of 1910; 25 (5 per cent.) were unable to work; 297 (63 per cent.) were fully able to work; 32 (7 per cent.) were partially able to work. Of the parallel group of 441 female patients, 48 (11 per cent.) had died; 26 (6 per cent.) were unable to work; 293 (66 per cent.) were fully able to work, and 74 (17 per cent.) were only partially able to work.

Of those belonging to Group 2, 461 were male patients, of whom 141 (31 per cent.) had died; 36 (8 per cent.) were unable to work; 240 (52 per cent.) were fully able to work, and 44 (9 per cent.) were partially able to work. Of the 227 female patients, 28 (12 per cent.) had died; 15 (7 per cent.) were incapacitated; 151 (66 per cent.) were fully able to work, and 33 (15 per cent.) were partially able to work.

In Group 3 were 107 male patients, of whom 70 (65 per cent.) had died; 8 (7 per cent.) were unable to work; 23 (22 per cent.) were fully able to work; 6 (6 per cent.) were only partially able to work. Of 34 female patients belonging to this group, 20 (59 per cent.) died; 4 (12 per cent.) were unable to work; 9 (26 per cent.) were fully and 1 (3 per cent.) only partially able to work. Group 4 offers no special interest.

The percentages of male patients who recovered so as to be able to work were in Groups 1, 2 and 3, respectively, 52.5, 42.4 and 4.1; for the women the proportions were 63.7, 32.8 and 2 per cent.

The influence of age, the duration of the disease before treatment and the heredity were also recorded. Of the male patients reexamined in 1910, 306 had been between 15 and 25 years of age; of these, 87 (28 per cent.) had died; 6 (2 per cent.) were unable to work; 194 (63 per cent.) were fully able to work, and 19 (7 per cent.) were partially able to work. In the parallel group of 483 female patients, 63 (13 per cent.) had died; 22 (4 per cent.) were unable to work; 332 (69 per cent.) were fully and 66 (14 per cent.) were partially able to work. Aged from 25 to 50 years were 698 male patients, of whom 217 (31 per cent.) had died; 55 (8 per cent) were unable to work; 364 (52 per cent.) were fully and 62 (9 per cent.) were partially able to work. In the parallel group of 226 female patients, 34 (15 per cent.) had died; 22 (10 per cent.) were unable to work; 128 (57 per cent.) were fully and 42 (18 per cent.) were partially able to work. The report of the patients over 50 years old offers no special interest.

The duration of the disease before treatment had been in 341 male cases from one to six months; of these patients 87 (25 per cent.) had died before the end of 1910; 17 (5 per cent.) were unable to work; 211 (62 per cent.) were fully able to work; 26 (7 per cent.) were partially able to work. Of the parallel group of 172 female patients, 20 (12 per cent.) had died; 4 (2 per cent.) were unable to work; 126 (73 per cent.) were fully and 22 (13 per cent.) were partially able to work. The duration of the disease in 344 male patients had been from six to twenty-four months; of these patients 115 (33 per cent.) had died; 16 (5 per cent.) were unable to work; 191 (56 per cent.) were fully and 22 (6 per cent.) were partially able to work. In a parallel group of 238 female patients, 33 (14 per cent.) had died; 21 (9 per cent.) were unable to work; 147 (62 per cent.) were fully and 37 (15 per cent.) were partially able to work. In 234 male patients the duration of the disease before treatment was from two to six years; of these patients, 82 (35 per cent.) had died; 24 (10 per cent.) were unable to work; 103 (44 per cent.) were fully able to work, and 25 (11 per cent.) were partially able to work. In a parallel group of 187 female patients, 26 (14 per cent.) had died; 8 (4 per cent.) were unable to work; 119 (64 per cent.) were fully able to work, and 34 (18 per cent.) were partially able to work. About the same percentages are evident with patients who had had the disease from six to twelve years before treatment. From this it can be concluded that long duration does not necessarily mean a less favorable prognosis.

An inherited taint had been noted in 274 male patients, of whom 86 (31 per cent.) had died; 19 (7 per cent.) were unable to work; 147 (54 per cent.) were fully and 22 (8 per cent.) partially able to work. In a parallel group of 303 female patients, 42 (14 per cent.) had died; 23 (8 per cent.) were unable to work; 192 (63 per cent.) were fully and 46 (15 per cent.) were partially able to work. No inherited taint could be traced in 656 male patients, of whom 193 (29 per cent.) had died; 38 (6 per cent.) were unable to work; 374 (57 per cent.) were fully and 51 (8 per cent.) were partially able to work. In a parallel group of 270 female patients, 48 (13 per cent.) had died; 19 (5 per cent.) were unable to work; 244 (66 per cent.) were fully able to work, and 59 (16 per cent.) were partially able to work. These figures seem to prove that the so-called inherited taint does not necessarily entail a special lack of resistance to tuberculosis. Such persons do not succumb to it any more readily than those free from such heredity.

Centenary of the University of Breslau

On August 1 and 2 was celebrated the centenary of the founding of the University of Breslau. One year after the founding of the University of Berlin, the University of Frankfort on the Oder, which was only a few miles from Berlin, moved to Breslau on account of the rapid growth of the Berlin institution and the competition it involved. Although the University of Breslau, like the University of Berlin, was founded at a time when Prussia was depressed by the Napoleonic wars, this former institution also was soon to make a remarkable progress, and especially in the medical faculty there developed a school rich in research and important teachings. During these hundred years many prominent men, who have made valuable contributions to medicine, have held positions in the Breslau medical faculty. Among these may be mentioned the physiologists Purkinje and Heidenhain, the internists Frerichs, Biermer and Kast, the surgeons Middeldorpf and Mikulicz, the gynecologist [illegible] logic anatomists Cohnheim and Ponfi [illegible] Foerster, the neurologist Wernicke, and Haeser the professor of history of medicine. As is well known, it was to the famous botanist of Breslau, Ferdinand Cohn, that Robert Koch submitted his first culture of the anthrax bacillus; Koch intended at one time to take up residence in Breslau but gave up the idea for material reasons. On the occasion of the centenary, several professors of other faculties and many especially meritorious men were created honorary doctors by the medical faculty. Ehrlich, who is a Silesian by birth, also received an honorary degree from the philosophical department (equivalent to our arts and sciences department).

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Aug. 21, 1911.

Diseases of Household Servants in Comparison with Other Workers

At present, a union of household servants is in preparation in this country. One of the earliest results of the movement is the information obtained in regard to the distribution of disease among this part of the population. Hitherto, the conditions have been regarded by some as favorable, while others thought them very bad. Altogether, only few such investigations and investigators were known. Certain affections are very frequent. Thus in Vienna, anemia, disorders of the stomach, rheumatism and troubles of the sexual organs are the most frequent, in the order mentioned. Anemia is readily explained by the long stay in badly ventilated rooms and the rare walks in fresh air, as well as by the insufficient amount of sleep; sometimes the quantity of food is insufficient. Cooks suffer in their stomachs because of too frequent tasting of the foods they are preparing. Rheumatic affections are very common among all servants, partly on account of the frequent exposure to cold and bad weather, without sufficient protection, partly from working in unhealthy kitchens, washing kitchens and sculleries. A frequent complaint of servants is static flat-foot with varicose veins of the legs. Affections of the lungs are less frequent than one would expect in Vienna. It seems that the inherited constitutions of the servants—mostly daughters of the healthy rural districts—protect them to a great extent; their health statistics are much better than those of, for instance, shop assistants, typewriters and office girls. The reports of the Vienna Krankenkasse concerning the latter group show that within one year more than 13 per cent. of the members have suffered from affections of the respiratory organs, lasting more than three days, while for house servants the figures are found to be about half of that. The alimentary canal was affected in 9 per cent. of the latter, while in 11 per cent. of the shop and office girls, the conditions of nourishment were also decidedly in favor of the house servants. Worst off is the factory girl, who not only is often underfed but is also exposed to much more danger of physical and moral nature. Illegitimate births are most frequent among this class of workers; the house servants come next in this respect, while the third group only rarely contributes to this item. A remarkable fact is the relative frequency of nervous diseases and neurasthenia, or rather hysteria, among the housemaids; one would not suppose that fully 2 per cent. of all the servants in this group are classified as victims of such diseases. Surgical diseases, except panaritium, bursitis patellaris and dental periostitis, are not frequent among servants, while the factory girls are prone to various factory accidents.

Opposition to Tuberculosis Sanatoriums

The munificence of a wealthy philanthropist has placed at the disposal of the Society for the Care of Tuberculous Patients the necessary funds for erecting, at various places, sanatoriums for tuberculous persons capable of recovery. One of these institutions devoted to the treatment of children, in the incipient stage of the disease, was to be built at Semmering, the well-known health resort in the mountains south of Vienna. Against this project a vehement opposition has arisen, mostly from the owners of other sanatoriums at Semmering, as well as from other persons who ought to know better. It was spread broadcast that such an institution would be a menace to the health of the villagers and other inhabitants of the famous mountain-range, and even the municipality of Vienna protested against the erection of such a sanatorium there, because it would "spoil the air and no longer offer the strangers and tourists a pleasant recreation ground." In vain, the medical men pointed out that the danger of infection did not exist, that the presence of such institutions is an urgent necessity for the national welfare and health; the interests affected by the plan were more powerful than any other consideration, and the philanthropist has been forced to reconsider his generous offer. It is probable that he will also have to cancel some other plans. This loss to public welfare will not be compensated quickly.

A Home for the Vienna Medical Organizations

Apart from the Gesellschaft der Aerzte, no medical organization of this city owns its own home, but all, even the official medical council, have rented flats so that their abodes lack freedom from the whims of landlords and houseowners. It has recently been suggested that a home for all the official, scientific, provident and social organizations and bodies of the profession in this city should be erected. The necessary funds will readily be obtained and the cost of maintenance will be divided among the various bodies. The principal organizations affected by this plan are: the council, the doctors' orchestra, the sick-benefit society, the widows and orphans' society, the economic organization the Doctoren Collegium (a provident society of very considerable means and influence), five scientific medical societies, and also several provident societies in the country districts. It is most likely that a centralization of offices will pave the way for the unification of the societies which, no doubt, would prove a most welcome money-saving proposition, and a strong movement in this direction is manifest. Whatever the result of this movement might be, it is sure that a "doctors' house" is an urgent necessity for us here, not least from an ethical point of view, as an exponent of medical concord.

Spread of Cholera

Cholera is gradually spreading in the southern part of Austria and its hinterland, and sporadic cases appear also in distant places. In Vienna a woman died from it after an illness of four days and there was no clue to indicate the mode of infection in this particular case, in spite of all researches. The army medical corps has been warned to be on the lookout in the affected districts, and maneuvers have been postponed or given up for the same reason. At any rate the public health officers assert that they control the attack and the population is by no means excited or frightened.

Personal

Professor H. Schloffer, who for several years was chief of the surgical clinic in Innsbruck, has been appointed to the equivalent position in Prague (German university).

Professor W. Trendelenburg of Freiburg has been appointed to Innsbruck, as professor of physiology, and Professor Kucera has become extraordinary professor in the University of Lemberg where he will deliver his lectures on hygiene.

Medical Strike in Hungary

The physicians of the workingmen's club in upper Hungary have refused to do any work on the old terms for the club. Physicians from twenty-five other districts joined their colleagues, so that the club had to come to terms with the practitioners at last. This is the first successful medical strike on a large scale in Hungary.

Difference in Intuitive Powers.—G. A. Auden (*Jour. Crim. Law and Criminology*) says that the study of mental defect has taught us that there are some individuals in whom the power of forming a concept from the letter symbols, by which we express words, is lacking (i. e., who are "word-blind"), who are, however, capable of forming correct mathematical concepts from the symbols by which we denote number. There are others in whom the reverse defect is found. These can read fluently, yet they cannot grasp the fact that 3 plus 3 equal 6, because they cannot form a concept of number. We find similarly word-deaf persons and color-blind persons. (There are some grounds for believing that color-blindness is, in part at any rate, central rather than peripheral in origin.) In the same way some of us have no ear to recognize the rhythm of sound which we designate as "tune;" others have a deficient sense of position, and, to use a phrase borrowed from the phrenologist, have no "bump of locality." Indeed such facts as these seem to show that all these faculties are developed in varying degrees in each individual. It seems, therefore, reasonable and logical to regard the capacity of forming a moral concept as analogous, and to believe that this faculty may show all stages of development or be absent.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

THE CHARGE AGAINST DR. WILEY

Extracts From the Testimony Given Before the Congressional Committee

[The charge against Dr. Wiley was nominally formulated by the committee on personnel, composed of Solicitor McCabe, W. M. Hays and C. C. Clark. While most of the charges were actually brought against Drs. H. H. Rusby, L. F. Kebler and W. D. Bigelow, it was made to appear that Dr. Wiley, as Chief of the Bureau of Chemistry, was the individual chiefly concerned. The only actual charge against Dr. Wiley was that he, with Dr. Bigelow, had entered into a secret agreement with Dr. Rusby regarding the rate of compensation that the latter should receive from the government. The committee on personnel submitted a long report to Secretary Wilson, from which we quote a small portion. The part quoted constitutes the whole of the evidence submitted by this committee to prove its contention that Dr. Wiley had entered into a secret agreement with Dr. Rusby. The matter follows:]

THE BASIS OF THE CHARGE

> "On January 23, 1911, Dr. Rusby informed Dr. Wiley that he had agreed with Dr. Bigelow, as being fair and satisfactory, upon the following agreement:
>
> "'This agreement provides that my salary shall amount to $2,000 per year, conditional upon my doing 100 days of seven and one-half hours each. It is understood that if the amount of service should not reach that number of days there would be a pro rata reduction in my compensation.' (Rusby to Wiley, Jan. 23, 1911, E-94.)"

THE CHARGE ANALYZED

[In investigating this point, the following testimony was given by Dr. Wiley before the committee:]

Mr. Floyd: On page 176 of the hearings of July 28, I notice there is a heading: "Facts not controverted"; and on page 177, near the middle of the page, is this statement:

> "Further in a letter of Jan. 23, 1911, to Dr. Wiley, Dr. Rusby states that an agreement had been reached between himself and Dr. Bigelow that his salary should amount to $2,000 per year, with the understanding that he did 100 days' work."

I want to ask you the direct question whether you did or did not enter into any contract with Dr. Rusby whereby he should receive $2,000 for 100 days' work, or any number of days' work?

Dr. Wiley: I did not.

Mr. Floyd: What about that letter? It says that in a letter—

Dr. Wiley: That letter was never sent to me. I never saw it nor heard of it until it was published in these proceedings.

Mr. Floyd: Had you received it at all?

Dr. Wiley: I never had it. It never came to me.

Mr. Davis: The letter in full appears on page 154.

Mr. Floyd: Have you since seen that letter?

Dr. Wiley: Yes, sir; I have seen it published.

Mr. Floyd: The statement that I read would indicate that that was brought to your knowledge, and was an undisputed fact in the case.

Dr. Wiley: Yes, sir. That is false. It was not brought to my knowledge, and I did not know anything about it.

Mr. Floyd: Have you since seen that letter?

Dr. Wiley: Yes, sir.

* * *

Mr. Floyd:—What is your explanation, Doctor, if you have any to make, in regard to that letter?

Dr. Wiley: Dr. Rusby explains it himself on page 185, at the top of the page. In a letter addressed to the Secretary of Agriculture, under date of July 13, 1911, he says:

"I desire to say to you that my letter of Jan. 23, 1911, addressed to Dr. Wiley, was never sent to him, nor, so far as I know, did he ever know that it had been written, until it came out at the hearing. After writing this letter I learned that Dr. Wiley was absent from Washington, and that the letter, if sent, would not reach him. I therefore did not send it, but the copy got into my files, and when you later asked me to send all correspondence bearing on this subject I sent this copy, forgetting that the original had never been sent to Dr. Wiley."

Mr. Floyd: That letter is addressed to Secretary Wilson?

Dr. Wiley: Yes, sir.

Mr. Floyd: Of date of July 13, 1911?

Dr. Wiley: Yes, sir; and it is quoted from on page 178, omitting that part of it which is most important, viz.: that the agreement would not be valid until approved by the department.

Mr. Davis: Page 177.

Dr. Wiley: It is quoted on page 178, in quotations, near the top of the page—the third paragraph. A quotation is made from this letter omitting the first paragraph, which says that "this agreement is not valid until approved by the department" "at Dr. Rusby had no idea of any secret I had not any idea and never knew that been made at all. The committee on personnel knew that I had never seen this letter, because I sent to them a complete list of letters which I had received, and stated that I had never received any personal letter from Dr. Rusby on this subject.

Mr. Higgins: You had no knowledge that this contract was made, then, Doctor?

Dr. Wiley: Absolutely none: and it never was made—no contract of any kind. He says that an agreement was reached with Dr. Bigelow that he would work for that, if approved by the department; not under any other conditions.

Mr. Higgins: But you had no knowledge of these negotiations with Dr. Rusby to get his services as an expert investigator?

Dr. Wiley: I did not have any knowledge at all of them. I asked Dr. Bigelow to find out from Dr. Rusby the smallest salary he would work for, on an annual salary. That is all I asked him to do. I did not know any means by which they reached the $2,000.

Mr. Higgins: You had no knowledge or information about the matter of the exchange of letters, and consultations?

Dr. Wiley: I know they exchanged letters, and Dr. Bigelow came to me from time to time.

Mr. Higgins: But you did not know what they contained?

Dr. Wiley: I did not know what they contained. I never saw the letters.

Mr. Floyd: And you had no correspondence yourself?

Dr. Wiley: I had not a word of correspondence of any kind with Dr. Rusby on this subject.

Mr. Floyd: The letter from which they quote on page 177 and page 178 is a letter of January 23, 1911, which reads as follows:

Dr. Wiley: Which was not sent—which I *never* received.

Mr. Floyd (reading):

Dr. H. W. Wiley,
Chief Bureau of Chemistry, Washington, D. C.

Dear Sir: As a result of considerable discussion and correspondence with Dr. Bigelow regarding some change in the compensation allowed me as pharmacognosist which would make it possible for me to continue in the service, we have agreed upon the following arrangement as being fair and satisfactory, IF APPROVED BY THE DEPARTMENT.

Dr. Wiley: Yes, sir.

Mr. Floyd (reading):

This agreement provides that my salary shall amount to $2,000 per year, conditional upon my doing 100 days of 7½ hours each. It is understood that if the amount of service should not reach that number of days there would be a pro rata reduction in my compensation.

Trusting that this will be satisfactory to everyone concerned,

Very truly yours,

Dr. Wiley: And I should like to say, Mr. Floyd, that any connection I may have had with this alleged contract is based solely on that undelivered letter, which I had never seen, and on a partial quotation from it. There is not a scintilla of other evidence in this hearing that connects me with any such contract in any way.

Mr. Floyd: Did you have any correspondence with Dr. Rusby about this contract?

Dr. Wiley: Not a word; not a word on this subject.

Mr. Floyd: And you had received no letter whatsoever from him?

Dr. Wiley: Never, on this subject.

Mr. Floyd: On this subject; and the letter which they quote from was an unsigned letter, written by Dr. Rusby, but never delivered to you?

Dr. Wiley: Never sent out of his house until he brought it down himself.

Mr. Floyd: And he brought it in response to a call of this personnel board for all correspondence.

Dr. Wiley: Yes, sir. I have here a list of all the letters he sent—all the letters I have ever had from Dr. Rusby—which I sent to this personnel committee.

DR. WILEY CROSSEXAMINED

[The committee on personnel called Dr. Wiley and his associates before them and subjected them to a severe cross-examination. In discussing this investigation the following facts were brought out:]

Mr. Floyd: Did they state to you in that investigation what the charges were against you?

Dr. Wiley: No, sir.

Mr. Floyd: Did you know that any charges were made against you?

Dr. Wiley: I did not.

Mr. Floyd: They did not inform you that they were investigating charges against you?

Dr. Wiley: No, sir.

Mr. Floyd: Did you understand from your appearance there, and the questions asked, what the proceeding was or what it meant?

Dr. Wiley: No, sir; but before they got through I had my suspicions. In the first place, it was held secretly. Every other person had to leave the room. I did not like that. I considered that an insult to me.

Mr. Floyd: When you testified, no other person was allowed in the room?

Dr. Wiley: Then, before they got through, I thought there was something wrong; and so the next day I addressed a letter to Mr. Hays to find out and ask him specifically if there were any charges preferred against me or any member of my bureau. This letter read as follows:

Mr. Floyd: Just read that letter. I should like to hear it.

Dr. Wiley (reading):

Hon. Willett M Hays,
Assistant Secretary of Agriculture.

Dear Sir: I would be very glad if you would furnish me with a copy of any charges, or a summary of charges, presented to the Secretary of Agriculture or to the board of personnel respecting the attitude of the Chief of the Bureau of Chemistry, in regard to the appointment of Dr. H. H. Rusby as an expert pharmacognosist, or to any changes in his title or rate of compensation. Reference was made at the beginning of the hearing on Thursday, April 20, to a certain paper summarizing the charges, but I have not seen that paper nor have I been furnished with a copy. I think it is only just to my bureau to know what charges have been made, if any have been made, and by whom they were made.

Respectfully,
H. W. Wiley, *Chief.*

I will also read Mr. Hays' reply, dated April 24. (Reading:)

Dr. H. W. Wiley, April 24, 1911.
Chief Bureau of Chemistry.

Dear Sir: Referring to your letter of the 22d instant, requesting that you be furnished "with copy of any charges, or a summary of charges, presented to the Secretary of Agriculture or to the board of personnel respecting the attitude of the Chief of the Bureau of Chemistry, or any of the employees of the Bureau of Chemistry, in regard to the appointment of Dr. H. H. Rusby," etc., I beg to advise you that the matter has not been presented to the committee on personnel, in the form of charges. Under date of March 28, Dr. F. L. Dunlap, as acting chief of the Bureau of Chemistry, transmitted a memorandum to the Secretary, with certain exhibits, in relation to the matter referred to. This memorandum and papers were referred by the Secretary to the committee on personnel for investigation and report. In compliance with your request, I have had copies of this memorandum and accompanying papers made, and am forwarding them to you herewith. I am also sending a copy of the stenographic report of the hearing before the committee on personnel on April 20, 1911, at which you and Drs. Bigelow, Kebler and Rusby appeared.

Should you or Drs. Bigelow, Kebler or Rusby desire to submit any further statement in regard to the matters referred to in the papers forwarded, I would thank you to let me have them in writing for the committee on personnel by Friday morning, April 28.

Respectfully,
W. M. Hays, *Assistant Secretary.*

Mr. Davis: Those letters, I may say, are already in the record at pages 159 and 160, marked "F-108" and "F-109." They have already been printed.

Mr. Floyd: You received the opinion and recommendations of the personnel board, did you, in that letter?

Dr. Wiley: No; there was no other opinion in that letter except that.

Mr. Floyd: But did they afterwards send you the proceedings, with their findings?

Dr. Wiley: The hearings, yes; a copy of the hearings.

Mr. Floyd: Did they enclose you the recommendations of the personnel board?

Dr. Wiley: No; not then. I did not get those until two months or more later.

Mr. Floyd: Two months or more later?

Dr. Wiley: Yes. I got them, I think, on the 7th of July.

Mr. Floyd: You got a copy of the recommendations of the personnel board on the 7th of July—two months after that?

Dr. Wiley: Yes; in which they kindly offered me the opportunity to resign my position. Yes; I got that. I am much obliged to them for their courtesy.

Mr. Floyd: Did you receive them before they had been transmitted to the President, or afterwards?

Dr. Wiley: Afterwards; after they had been to the Attorney General.

Mr. Floyd: And to give force to that recommendation it was also accompanied by the opinion of the Attorney General, in which he also kindly gave you permission to resign, did he not?

Dr. Wiley: I will not express any opinion about the Attorney General.

THE POWER OF THE GLUCOSE TRUST

[The peculiarly powerful influence that certain large manufacturing interests exert at Washington was brought out in Dr. Wiley's testimony in connection with the Corn Products Co., commonly known as the "glucose trust." As THE JOURNAL has frequently pointed out, the use of the term "corn syrup" as a synonym for glucose is a direct imposition on the public: first, because "corn syrup" is not a syrup in the common acceptance of the term, and second, because people who are unwilling to buy glucose under its own name should not have it palmed off on them under a euphemistic and misleading name. Dr. Wiley has always maintained that glucose should be labeled glucose, but, as the following testimony brings out, he was overruled by mysterious influences brought to bear at Washington:]

Mr. Higgins: The opportunity was open, Doctor, for an appeal to the Secretary from the findings of the board?

Dr. Wiley: A great many times the interests affected did appeal to the Secretary.

Mr. Higgins: In such cases were they given a hearing?

Dr. Wiley: Yes; they were often given a hearing after the board had come to a decision and the Secretary had approved the decision of the board. One case particularly I have in view where the interests were given a hearing after the board had considered their action, the question of "corn syrup" as a proper label for glucose. The board, after giving a hearing to the parties interested and considering all the evidence, came to a decision, which was very grateful to me, because it was my opinion from the first that the term "corn syrup" was deceptive, and was used only to induce people to buy glucose who would not buy it if it were labeled "glucose," and all the board joined in that decision; it was approved by the Secretary of Agriculture and was sent to the printer and was in galley proof.

Dr. Wiley: At the time that decision was made the chairman of the board (myself) wrote a letter to the president of the Corn Products Co., Mr. E. T. Bedford, informing him of the action that had been taken. After the decision was actually approved an order was issued to suspend its publication—in fact, it was never published—but an exactly contrary decision was subsequently published by the three secretaries as a regulation under the Food and Drugs Act. I know from my own personal knowledge that the Corn Products Co. was very busy: they secured certificates from about thirty prominent chemists of this country, one of whom was afterwards a member of the referee board, to the effect that "corn syrup" was a proper term, and in one case at least I know that money was offered for this opinion to an eminent chemist, who declined to receive it, but informed me of the fact that he had been offered payment to render such an opinion.

Mr. Higgins: You do not mean to say that anybody in the government service was offered money?

Dr. Wiley: No; none of these chemists were in the government service. When I found out this was going on I wrote to all the chemists who were charged with the enforcement of the Food and Drugs Act of the United States, in the various states, and I put the question up to them whether, in the opinion of the food and drug chemists, "corn syrup" was a proper name for glucose, and everyone answered in the negative. They were not offered any money for their opinion by me and I do not suppose by anyone else—

Mr. Higgins: You think, then, experts are sometimes influenced by the size of their fee?

Dr. Wiley: No; I do not say that. I said that in this case one set of experts were offered money and others were not; that is all I said. When Mr. Bedford found out I had applied to the state chemists, he protested to the Secretary of Agriculture against my doing so.

Mr. Floyd: Who did so?

Dr. Wiley: Mr. Bedford, the president of the Corn Products Co.

Mr. Higgins: Protested to whom?

Dr. Wiley: To the Secretary of Agriculture. The Secretary of Agriculture sent me a telegram from Mr. Bedford and asked me to tell him what I had done, and I submitted to him a copy of the questions that I had submitted to the state chemists charged with the enforcement of the Food and Drugs Act. At the same time I prepared a brief on the question, which to my mind was a pretty good piece of work. This brief was furnished to the Corn Products Co., but Mr. Emery, of Wisconsin, the state food commissioner, had the greatest difficulty in getting a copy of it. Finally, I believe he had to apply to a member of Congress to get a copy, and I think he succeeded in getting a copy. He sided with me in this matter, and he had a suit on in his state, for he had ruled that "corn syrup" was not a proper name for glucose, and he wanted my brief, and he finally got it. You can find out from Mr. Emery how much trouble he had in getting it.

Mr. Higgins: He did not have any trouble in getting it after he applied to a member of Congress, did he?

Dr. Wiley: I don't know about that. I know that he finally applied to a member of Congress. The suit was continued in Wisconsin and the lower court rendered a verdict in favor of Mr. Emery; the case was appealed to the Supreme Court and the Supreme Court sustained the verdict that "corn syrup" was not a proper name for glucose, and gave some of the reasons which I had put forward in my brief.

The point I wish to bring out is this, that after the Board of Food and Drug Inspection had come to a decision—after each member of the board had approved it; after the Secretary had approved it and it was in print—it was withdrawn and an entirely different opinion, signed by the three secretaries, was substituted in its place.

Mr. Higgins: Did that remain as the regulation of the department until the Supreme Court reversed it?

Dr. Wiley: It still remains as the ruling and as the law.

WILEY FAVORS THE CONSUMER

[As indicating Dr. Wiley's attitude in all cases affecting the public health and also as showing how he and his associates were hampered in their attempt to make the Food and Drugs Act an instrument of public safety, the following testimony is both interesting and instructive:]

Mr. Davis: The solicitor [McCabe] in the course of his testimony and also in the course of certain of his correspondence, which has been produced before the committee, made some allusion to the fewness of cases affecting the public health that had been before the Board of Food and Drug Inspection and the Bureau of Chemistry. Do you wish to say anything about it?

Dr. Wiley: Yes; I would like to make a statement in that connection. There have been comparatively few cases which you could say directly affected the public health brought to the courts for the reason that the Bureau of Chemistry, under its constitution and regulation, obeys without question the orders of its superior officers, and having been advised, that is, the Bureau of Chemistry having been advised that the use of benzoate of soda in any quantity whatever was harmless, and having been advised that the use of saccharin and the use of sulphurous acid and the use of alum and the use of the other things referred to the referee board were not to be acted upon until the referee board reported, the Bureau of Chemistry was estopped from reporting hundreds and many hundreds—and I may say thousands—of cases of adulteration which it would have done had it been left to its own judgment in the matter.

Mr. Davis: So that as respects benzoate of soda and benzoic acid the ruling of the referee board cut out from the Bureau of Chemistry the consideration of the preservatives, so called, in this connection?

Dr. Wiley: As adulterants and as being injurious to health, yes, sir; absolutely. We have no authority, Mr. Chairman, to pronounce judgment on these cases which we believed were threatening the public health and were adulterations of the worst type.

Mr. Davis: And as respects alum, for instance, and those other questions referred to the referee board upon which action has not yet been taken, your hands are tied until action by the referee board?

Dr. Wiley: We are absolutely paralyzed.

Mr. Davis: I understood you yesterday to say, at least I think it was yesterday or the day before, that as respects alum you endeavored with your colleagues—or was it another substance?

Dr. Wiley: No; alum.

Mr. Davis: I think as respects alum you endeavored with your colleagues to get an understanding that, until the referee board should pass upon the harmfulness or otherwise of that article, prosecutions should be had in the interest of the public health?

Dr. Wiley: I did.

Mr. Davis: And without success?

Dr. Wiley: My only motive, and that which has guided me in every case which I have considered under the Food and Drugs Act, is to give every doubt to the consumer, and I hold that when experts disagree about the harmfulness of these bodies and the matter is referred to a final arbitrating board that the interests of the public health require that these bodies shall be excluded from foods until the board has reported. I think that is the least duty we can do to the public, and that is the duty I have always endeavored to do.

[Next week additional testimony will be published.]

Miscellany

Call of Scientific Age.—The call of the age to health is a call to sacrifice and to service, both personal and public; and the call to service has been the deepening undertone of the call to humanism, all along the ages. Sophocles, in his day, urged it on the Athenians, and Œdipus seizes on public service for his final passionate appeal to the prophet Teiresias for aid against the plague with which the land was cursed: "For in thee is our hope; and a man's noblest task is to help others, by his best means and powers." Our modern cynics may smile at the inconsistency of an age like our own which is constantly preaching the gospel of efficiency, and yet suffers grievously from bad domestic service and bad municipal service; but physicians, at least, do not need to be told that it is one thing to prescribe for a patient and quite another to persuade that patient to follow good advice. The call to life, and to life in this world, is thus the first and fundamental call of the scientific age. And the next is the call to health, i. e., to wholesome and fulness of normal life. It is not merely that we may have life, but that we may have it more abundantly. The first and chief characteristic of science is that it seeks always after Nature, after the normal, i. e., the natural, and looks askance on the abnormal and the super- or subnormal. Hence the call of a scientific age for normal, natural life and healthy living; hence its disapproval of disease, hence its disgust with dirt as a cause of disease, and its belief in public health as well as private welfare.—Sedgwick.

Standard Death-Rates.—Symptoms are abnormal manifestations of life. For example: The average pulse is about 72 beats per minute, and a pulse much over or under that average is abnormal or unusual, and, as a rule, indicates trouble. As with the pulse, so with the other phenomena of life; the average and the normal are nearly always the same. Just as there is an average pulse, an average number of respirations, an average consumption of food, an average amount of waste thrown off, all of which constitute what we regard as the normal, so there is an average number of deaths per year for a given population, an average number of deaths from typhoid, from tuberculosis and other diseases, which constitute normal standards for estimating health or disease conditions in a given community, town or state. Before one can recognize the abnormal he must be familiar with the normal, and before one is prepared to recognize symptoms of disease politic, he must know the average total death-rate and the average death-rate for the different diseases that obtain in a large population. Such death-rates have been collected and tabulated by the more progressive states that have recognized the value of keeping an account with death, so that from a large collection of authoritative statistics, we can find the normal or average death-rate for all diseases combined, or for any particular disease. Fifty-five per cent., or 48,000,000 of the population of the United States, are within the jurisdiction of rigidly enforced registration laws which supply the following statistics: Average annual death-rate from all diseases is 15 per 1,000; death-rate from tuberculosis, 1,675 per 100,000; for typhoid fever, 22 per 100,000; for whooping-cough, 11 per 100,000; measles, 10.2 per 100,000; and for malaria, 2.5 per 1000,000.—W. S. Rankin in *Bull. North Carolina Board of Health.*

Professional and Public Aspect of the Pneumonia Question.—As a plan of procedure in the prevention of the spread of pneumonia, W. J. White suggests (*Dominion Medical Monthly*, August), first of all, the proper segregation of pneumonia patients and their utensils in hospitals; cleaning by sprays and washes of the nose and throat of all who nurse and come in contact with these patients; careful hand washing of nurses and attendants after handling; careful destruction of sputum and other discharges; sterilization of linen of patients; fumigation of rooms after occupancy; and the use of gauze, which can be burned, instead of handkerchiefs. He would also have attached to dispensaries certain nurses who have received special instruction on nursing and preventing the spread of pneumonia, to be sent to all pneumonia cases in home nursing work. He recommends reporting all cases to the health department governing the district where the disease exists, and fumigation of the quarters in which the disease has occurred by the department after the death or recovery of the patient. Finally, the instruction of the public by pamphlets and school lectures on the necessity for keeping the nose and throat clean, especially during winter months; the necessity for controlling the dust of streets by better sprinkling and night sweeping; the evils of bad ventilation in house, public building and school; of alcohol; of badly cooked and poor food; of lack of rest; of worry; of the handkerchief; of the bearing of spitting on pneumonia as well as other diseases; of the increased resistance generated by open-air sleeping; and similar knowledge.

Marriages

Calvert N. DeForest, U. S. P. H. & M.-H. Service, Libau, Russia, to Miss Mabelle V. Taylor of Hoboken, N. J., April 19.

Edwin G. Kyte, M.D., Martinsville, Ind., to Miss Cora Simms, of Shelbyville, Ind., at Indianapolis, August 26.

Chester A. Whitmer, M.D., West Chester, Pa., to Miss Margaret Shafer, at Hagerstown, Md., August 22.

Valentine Vincent Bourke, M.D., East New York, N. Y., to Miss Edith Johnston of Brooklyn, August 15.

James Alexander Kinnear, M.D., Toronto, to Miss Katherine Oswald Laing of Essex, Ont., August 24.

Leonard Lucius Lamb, M.D., Chatsworth, Ill., to Miss Gertrude Snevely of Monon, Ind., August 30.

John Lyte Ressler, M.D., Bird-in-Hand, Pa., to Miss Elizabeth Staub of Millersville, Pa., recently.

Martin H. Mayfield, M.D., Hollis, Okla., to Mrs. Mattie Jackson of Springfield, Mo., August 24.

Charles Wyche, M.D., Kirkwood, Mo., to Miss Miriam G. Crosby of West Line, Mo., August 24.

Murdock M. Kerr, M.D., Calumet, Mich., to Miss Antoinette Priest of Evart, Mich., recently.

Deaths

Brigadier General Charles Ravenscroft Greenleaf, M. C., U. S. Army, retired, a surgeon of brilliant attainments, died at his home in San Jose, Cal., September 3, aged 73.

He was born in Carlisle, Pa., and was graduated from the Medical College of Ohio, Cincinnati, in 1860. At the outbreak of the Civil War he entered the volunteer service as assistant surgeon of the Fifth Ohio Infantry. Four months later he entered the regular establishment, received the grade of captain in 1866, that of major in 1876; was made lieutenant-colonel in 1891, colonel in 1896, was retired in 1902, for age, and was promoted to brigadier general (retired) in 1904.

General Greenleaf's service included the construction and administration of the Mower Hospital, Chestnut Hill, Philadelphia, said to have been the largest military hospital in the world, containing 5,000 beds. After the close of the Civil War he was in the ordinary frontier and garrison service until 1887, when he was ordered for duty in the office of the surgeon general, where he remained until 1893. From this time until the Spanish-American War he was in charge of the medical supply depot, San Francisco, and during this time was professor of public and military hygiene in the University of California.

General Greenleaf introduced the system of personal identification which is still in use in the army, organized the hospital corps of the army, and was the author of "Greenleaf's Manual for Medical Officers," "Greenleaf's Epitome of Trifler's Manual for the Examination of Recruits," which is still standard, and of many monographs on military-medical topics.

Starling Loving, M.D., one of the oldest, best-known and best-beloved practitioners of Ohio, died at his home in Columbus, September 2, from the infirmities of old age, aged 82. He was born in Russellville, Ky., where he received his preliminary education, and graduated in 1849 from Starling Medical College, Columbus, O., which was founded by his uncle, Lyne Starling. For four years thereafter he was engaged in graduate work in Bellevue Hospital, New York City. During the Civil War Dr. Starling served as major-surgeon of the Sixth Ohio Volunteer Infantry. His society membership included the American Medical Association, of which he was first vice-president in 1894-1895, the Ohio State Medical Association, of which he was president in 1882; the Association of American Physicians, and Columbus Academy of Medicine. He became professor of materia medica in his alma mater in 1857, professor of theory and practice of medicine in 1875 and dean of the faculty in 1884. On the merger of the Starling Medical College and the Ohio Medical University in 1907, Dr. Loving became teacher of clinical medicine in the institution. His hospital appointments included those of physician in chief to St. Francis Hospital, consulting physician to Mount Carmel Hospital and the Lawrence Hospital for Women, and a trustee of the Children's Hospital, Columbus.

Jehiel Tuttle Moore, M.D. McGill University, Montreal, 1874; one of the organizers and for thirteen years dean of the Minneapolis College of Physicians and Surgeons; formerly vice-president, acting president and professor of theory and practice of medicine in the medical department of Hamline University, Minneapolis; who in 1886, presented the resolution to the State Medical Society which eventually resulted in the appointment of a medical board by the legislature to regulate the practice of medicine; died at his home in Minneapolis, August 19, from heart disease; aged 62. Forty members of the State Medical Association honored Dr. Moore by attendance at his funeral. Drs. Horatio B. Sweetser and William B. Murphy acted as active pallbearers and Drs. William J. Byrnes, Leo M. Crafts, David O. Thomas, John D. Simpson, John W. Macdonald and Charles A. McCollom were honorary pallbearers.

Alva Winslow Nichols, M.D. Bellevue Hospital Medical College, 1873; of Greenville, Mich.; trustee of the Michigan Asylum for the Insane, Kalamazoo, from 1882 to 1889; secretary of the board of education from 1896 to 1905; local surgeon of the Pere Marquette, New Erie and Great Central railroads; formerly a member of the local pension examining board; for eighteen years a ward supervisor; died at the home of his sister in Grand Rapids, August 22, aged 62.

Walter Owen Ryan, M.D. Washington University, St. Louis, 1882; a member of the American Medical Association and president of the Sangamon County (Ill.) Medical Society in 1909; a prominent practitioner of Springfield and attending physician to St. John's Hospital, but for the last year a resident of Los Angeles; shot and killed his wife and himself at his home in Los Angeles, September 1, while mentally unbalanced.

Henry Gleason Thrall, M.D. Syracuse (N. Y.) University, 1901; of Fayetteville; formerly a member of the Medical Society of the State of New York and the Manlius Physicians' Club; died at the home of his father at Gouverneur, N. Y., August 10, from tuberculosis, aged 34.

Porter Turner, M.D. Hahnemann Medical College, Chicago, 1886; mayor of Elkhart, Ind., from 1898 to 1902; who had suffered for four years from cirrhosis of the liver; died at his home in the Turner Hospital, Elkhart, August 15, from nephritis, aged 59.

John Duke Waller, M.D. Rush Medical College, 1883; a member of the American Medical Association; for five years assistant physician in the Jacksonville (Ill.) State Hospital; died at his home in Oak Park, August 22, from uremia, aged 59.

John T. Myers, M.D. Washington University, St. Louis, 1871; of Petersburg, Ill.; surgeon in the Confederate service during the Civil War; a member of the Illinois State Medical Society; died in St. John's Hospital, Springfield, August 19, aged 73.

James Sullivan, M.D. Yale University, New Haven, Conn., 1875; of Manchester, N. H.; formerly a member of the New Hampshire State Medical Society and local pension examining surgeon; died in Carney Hospital, Boston, August 16, aged 58.

John E. Angstadt (license, Pennsylvania), a veteran of the Civil War; a member of the board of health of Elizabethtown since its organization, and for one term a member of the school board; died at his home, August 18, from senile debility.

E. L. Nix (license, Texas, 1907), a Confederate veteran and later a soldier in the United States Army; for twenty-nine years a practitioner; died at his home in Kennedale, Tex., January 11, from pulmonary tuberculosis, aged 65.

Joseph Hensley, M.D. Hahnemann Medical College, Chicago, 1871; at one time president of the Oklahoma State Homeopathic Medical Society; died at his home in Oklahoma City, August 20, from senile debility, aged 69.

Wendell D. Neville, M.D. Michigan College of Medicine, Detroit, 1884; of Eagle River, Wis.; a member of the State Medical Society of Wisconsin; died in Chicago, August 24, from valvular heart disease, aged 50.

Samuel Morris Weeks, M.D. College of Physicians and Surgeons, New York City, 1853; Nestor of the medical profession of Nova Scotia; died at his home in Newport, August 19, from senile debility, aged 80.

Leon A. Warsabo, M.D. University of Moscow, Russia, 1868; for thirteen years health officer of Coldwater, Mich.; died at his home in that place, August 23, from cerebral hemorrhage, aged 63.

John E. Lockridge, M.D. Medical College of Virginia, Richmond, 1863; of Indianapolis; died recently at the home of his niece in Nevada, Ia., and was buried in Indianapolis August 15.

William Cyprian Cross, M.D. Vanderbilt University, Nashville, Tenn., formerly of Cherokee, Ala.; died at his home in Hatchubbee, Ala., Dec. 27, 1910, from nephritis, aged 54.

D. A. N. Thomas, M.D. Medical College of Georgia, Augusta, 1888; of Jersey, Ga.; was struck by a train near Fowler's Junction, August 20, and died a few minutes later.

George Calvert Stewart, M.D. College of Physicians and Surgeons, Baltimore, 1878; of Alexandria, Va.; died in the Alexandria Hospital, August 16, aged 58.

Henry Herold (license, Indiana, 1897), a veteran of the Civil War; died at his home in Martinsville, May 15, from valvular heart disease, aged 77.

Benjamin A. Thomas, M.D. Starling Medical College, Columbus, O., 1869; died at his home in Rushville, O., August 6, from senile debility, aged 75.

John Ashbel Johnson, M.D. Albany (N. Y.) Medical College, 1877; died at his home in Chateaugay, N. Y., August 12, aged 72.

Correspondence

Contract-Practice

To the Editor:—I wish to say a public word in commendation of the report of the committee signed by Dr. Edward E. Haley on "The Evils of the Contract-System," and published in THE JOURNAL, Aug. 19, 1911, page 674. If any physician has laid his journal aside without reading that report he should look it up and read it. It is the only paper I have read which goes to the heart of the system. Contract-practice, particularly railroad contract-practice, is the most far-reaching evil at work in lowering the dignity and prestige of medical men and their work.

FRANCIS W. GALLAGHER, El Paso, Tex.

Improper Clothing Deforming the Nipples of Young Girls

To the Editor:—My attention was called some years ago to the coincidence of the adoption of a new style of undershirt by women and an increasing number of cases of so-called retracted nipples.

At first, I was somewhat incredulous in the matter and was disinclined to attribute this very serious deformity to what seemed, at first blush, so small a matter as the wearing of undershirts or vests, by growing girls, in which no special provision is made to prevent pressure on their nipples. I had always supposed that retracted, or rather submerged, nipples were due to tight-fitting corsets. Probably both factors are active in causing this deformity.

I find that a belief is cherished among our profession that so-called retracted nipples may be due to faulty or arrested development, like hare-lip or spina bifida. This, I think, is quite erroneous. So far as I have been able to observe the nipples of little girls with undeveloped breasts, they always protrude beyond the surface of the breast. It seems to be only in the rounded breast of considerable development that the nipple is imbedded in the surrounding tissue, so that the front of the breast is often as smooth as a billiard ball. It seems evident that the pressure of the clothing has held the nipple back while the breast has pushed forward and finally surrounded this sensitive little organ.

This question is of such extreme importance that a most careful and painstaking investigation of its every phase should be carried out. Public institutions like orphan asylums and reform schools for girls would seem to afford a fair field for this study. One would suppose that the wearing of undershirts with pockets to receive the breasts is so simple a matter that it could easily be carried out; yet children are heedless and no one seems to take pains to watch them, or to teach them the need of care of these most important structures.

In talking to a mother the other day on this subject, I was surprised to hear her say that she did not know whether her daughter's nipples were retracted or not. She asked her daughter, a young lady of fifteen or sixteen, to show her breasts and in each of them the nipple was apparently firmly imbedded; at all events, its distal extremity was flush with the front of the breast.

The attitude of our profession should be a firm refusal to countenance the marriage of any nippleless woman. Inability to suckle her offspring ought, in law and conscience, to inhibit any woman from marrying. By insisting on this ultimatum and inciting the mothers of growing girls to be extremely watchful in the prevention of this deformity, we may be able to check its apparently rapid and general increase.

The present generation can scarcely hope to live to see reason and common sense prevail in ordaining the fashions of women's dress, but we ought to be able to prevent the mutilations and self-inflicted deformities of the human body, now, alas! so common.

RICHARD COLE NEWTON, Montclair, N. J.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DIET FOR GASTRIC ULCER

To the Editor:—What is Lenhartz' diet for gastric ulcer? What percentage of cures does it show?

M. OYEN, M.D., Ellsworth, Wis.

ANSWER.—Lenhartz' diet was described in THE JOURNAL, June 12, 1909, p. 1943. The reported cases do not yet afford sufficient data for an accurate estimate of the percentage of cures.

THE CORRECT PLURAL OF SPOONFUL

To the Editor:—Which is grammatically correct, "teaspoonsful" or "teaspoonfuls"?

C. F. H., Oklahoma.

ANSWER.—The correct plural of "spoonful" is "spoonfuls." "Three teaspoonsful" would mean three full teaspoons, not three times the quantity held in a teaspoon.

SPLINT FORMULA WANTED

To the Editor:—Can you furnish a satisfactory formula for a good cloth or felt splint, which can be made pliable by heat so that it can be molded to the limb, and which will afterward become hard?

F. S. R.

The Public Service

Medical Department, U. S. Army

Changes during the week ended Sept. 2, 1911.

Mason, George L., dental surgeon, left temporary duty, Fort Leavenworth, Kan., en route to station, Fort Snelling, Minn.

Johnston, James F., lieut., left presidio of San Francisco en route to Whipple Barracks, Ariz., for temporary duty.

Schreiner, E. R., major, relieved from further duty with 1st Cavalry and on expiration of present leave will return to Boise Barracks, Idaho.

Johnson, Thomas H., lieut., will accompany Troop A, 1st Cavalry, from Sequoia and General Grant National Park to presidio of San Francisco. Lieutenant Johnson will then proceed to Fort Baker, Cal., for duty.

[illegible] dental surgeon, on completion of temporary du[illegible] Ariz., will return to Fort Douglas, Utah.

[illegible] captain, granted thirty days' leave of absence.

Mason, George L., dental surgeon, returned to Fort Snelling, Minn., from temporary duty at Fort Leavenworth, Kan.

Richardson, William H., captain, granted leave of absence for two months, with permission to apply for an extension of one month, to take effect about Nov. 1, 1911.

Brooks, William H., major, granted leave of absence for one month.

Birmingham, H. P., colonel, granted thirty days' leave of absence about Sept. 1, 1911.

Ireland, M. W., granted twenty-four days' leave of absence about Sept. 1, 1911.

Smith, William H., lieut., on arrival at San Francisco will proceed to Fort Sheridan, Ill., for duty.

Mount, James E., lieut., relieved from duty at Fort Sheridan, Ill., and ordered to Schofield Barracks, H. T., for duty.

Tuttle, Arnold D., lieut., on arrival at San Francisco will proceed to Army General Hospital, San Francisco, for duty.

Napier, Edward L., lieut., relieved from duty at Army General Hospital, San Francisco, and ordered to Fort McDowell, Cal., for duty.

Hutton, Paul C., major, when services are no longer required at San Antonio, Texas, is relieved from duty at Fort Snelling, Minn., and ordered to Fort Howard, Md., for duty.

Geddings, Edward F., major, relieved from duty at Fort Howard, Md., and ordered to Fort Snelling, Minn.

Ashford, B. K., major, relieved from duty with governor of Porto Rico and will report to the commanding officer, Porto Rico regiment of infantry for duty.

Scott, Thomas E., M.R.C., ordered to active duty and assigned to station at Fort Moultrie, S. C.

A board of medical officers to consist of Col. Louis A. La Garde, Lieut.-Col. Walter D. McCaw, Maj. Powell C. Fauntelroy, Maj. Carl R. Darnell, Maj. Frederick F. Russell, Maj. Charles R. Reynolds, Maj. Paul S. Halloran, Capt. William T. Davis, Capt. Charles F. Craig, Capt. William A. Wickline, Capt. William A. Duncan, Capt. Henry J. Nichols is appointed to meet at the Army Medical School, Washington, D. C., to determine the results of the preliminary examination of applicants for the final examination of candidates from admission to the Medical Corps.

Casper, Joseph, lieut., granted thirty days' sick leave of absence and directed to proceed to the Philippine Islands for duty on Oct. 5, 1911, instead of Sept. 5, 1911.

Hathaway, L. M., captain, leave of absence extended one month.

Eber, Albert H., M.R.C., granted two months' leave of absence, to take effect about Oct. 1, 1911.

Worthington, Joseph A., captain, granted one month and fifteen days' leave of absence, to take effect about Sept. 15, 1911.

Edger, Benjamin J., Jr., major, granted four months' leave of absence when his services can be spared.

Northington, E. G., lieut., granted thirty days' leave of absence about Sept. 2, 1911.

Denton, William, lieut., ordered to Fort Bliss, Texas, for temporary duty.

Stayer, M. C., lieut., reports from duty on transport *Buford* to duty as surgeon on the *Logan*.

Medical Corps, U. S. Navy

Changes during the week ended Sept. 2, 1911.

Mackenzie, E. G., P. A. surgeon, detached from the *Kansas* and ordered to duty at the naval hospital, New York.

Toulon, A. J., asst. surgeon, ordered to duty at the naval hospital, Philadelphia.

Winn, C. K., P. A. surgeon, detached from duty at naval hospital, New York, to duty on *Mississippi*.

Holeman, C. J., P. A. surgeon, detached from duty on *Petrel* to home and await orders.

Robertson, G. E., asst. surgeon, detached from duty on *Mississippi* to duty on *Petrel*.

U. S. Public Health and Marine-Hospital Service

Carter, H. R., surgeon, granted seven days' leave of absence from Aug. 24, 1911.

King, W. W., P. A. surgeon, directed to proceed from Naples to Genoa, Italy, on special temporary duty.

McClintic, T. B., P. A. surgeon, granted ten days' additional leave from Aug. 24, 1911.

McLaughlin, A. J., P. A. surgeon, directed to proceed to Reedy Island quarantine and Delaware Breakwater quarantine on special temporary duty.

Francis, Edward, P. A. surgeon, detailed to inspect the laboratory of the State Board of Health of Georgia, at Atlanta, and the Bacterio-Therapeutic Laboratory, at Asheville, N. C.

Foster, A. D., P. A. surgeon, leave of absence for one month from Aug. 2, 1911, amended to read "one month from August 20,"

Frost, W. H., P. A. surgeon, detailed to make an investigation into the origin and prevalence of typhoid fever in the vicinity of Fort Smith, Ark.

Evans, J. G., A. A. surgeon, granted nine days' leave of absence, without pay, from Aug. 1, 1911.

Falk, Charles C., A. A. surgeon, granted nineteen days' leave of absence from Aug. 13, 1911.

Hamilton, H. J., A. A. surgeon, granted seven days' leave of absence from Aug. 24, 1911.

Nute, A. J., A. A. surgeon, granted twenty-five days' leave of absence from Sept. 3, 1911.

Tappan, J. W., A. A. surgeon, granted seven days' leave of absence from Aug. 21, 1911.

Medical Economics

This Department Embodies the Subjects of Postgraduate Work, Contract Practice, Legislation, Medical Defense, and Other Medicolegal and Economic Questions of Interest to Physicians

THE NEW YORK EVENING JOURNAL ON SCIENTIFIC MEDICINE

In a recent issue of the New York *Evening Journal*, Mrs. Ella Wheeler Wilcox contributed an article in which she extolled "mental healing," and predicted that in 100 years "thought will be the acknowledged power used by all reputable physicians to cure and heal humanity."

The *Journal* says editorially that it is unwilling to print the article without a few qualifications, and then makes some criticisms and comments, from which we quote a part:

> "Mrs. Wilcox . . . is right when she criticizes the doctor who, unable to deal with the neurotic young girl, makes of her a morphin fiend, to let himself out of his difficulties, takes money from the girl's father, and in return inflicts the most dreadful curse on her. Such a physician should be put in jail and kept there. . . .
>
> "Mind cures, faith cures, Christian Science, by bringing into play certain forces of the mind, can combat, and sometimes cure, illness caused by a weakened, disorganized mental and nervous condition. It is in substance true, although a little harsh to say, that the modern mental healers 'can cure any disease that you haven't got;' that is to say, that they can cure a disease which is entirely mental and largely imaginary.
>
> "It is untrue and dangerous to say that any mental healing can take the place of a skilful surgeon. Thousands of children are made miserable throughout life because they are not freed from adenoid growths—abnormal developments in the back of the throat which prevent proper breathing. Only the surgeon's knife can remove and cure adenoids. No faith healer, mental healer, Christian Scientist or anybody but a competent surgeon can do that, or ever has done it. Sometimes adenoids may be partially absorbed, extraordinary physical vigor may fight successfully against them. And the placid, happy mental state of the individual who believes in faith healing may help along a good physical condition.
>
> "But you need a surgeon to attend to adenoid growths.
>
> "You need a dentist to attend to your teeth.
>
> "You need antiseptic treatment, or, better still, aseptic treatment, in all surgical operations.
>
> "You need a skilful doctor 'of the old school' in childbirth, and if you have not got one you risk the life of the mother and child—and you ought to be put in jail for doing that. Some faith healers get around the childbirth problem by saying that it is not necessary to have any childbirth, and that if we were sufficiently scientific material births could be eliminated. But that is not very satisfactory when the child arrives.
>
> "The surgeon's knife does slip sometimes. If the surgeon is incompetent he should be driven out of his profession. The plumber's tools slip sometimes and the job is bungled. Such a plumber should be driven out of his profession. Many surgeons and many plumbers lack skill. But that does not justify the silly notion that you can install plumbing in a house with faith or Christian Science, or that, with those agencies, you can remove a vermiform appendix.
>
> "Nobody should interfere with a faith healer or mental healer because that individual takes a dollar or $10,000 from the adult who wishes to employ him. So far as adults are concerned, there is no harm in allowing faith healers to treat their non-contagious diseases from stone-bruise to lockjaw. If the adult is willing to die of a non-contagious disease in order to demonstrate a theory, let him. Such an adult can be spared. But faith healers and others must not be permitted to deal with contagious diseases or pretend to cure them—that is dangerous to the public at large. . . .
>
> "It is not a fact that 100 years from now all doctors will cure with thought. One hundred years from now and 1,000,000 years from now matter will act on matter, and the agency used will be force directed by thought. Thought is the directing agency.
>
> "There are three things in the world—Thought, which rules and directs—Force, which carries out the orders and conceptions of thought—and Matter, in which thought realizes itself and its visions.
>
> "A hundred years from now and a million years from now the surgeon's knife will remove the tumor, if it still exists, just as the plow will cut through the soil and the hammer will carve the stone. But perhaps in a few hundred years, and certainly in a million years, increased intelligence among men, greater self-control, absolute sobriety, wise living, scientific knowledge, even among children, will make disease almost unknown, and limit the activities of physicians almost entirely to prophylaxis, which is prevention.
>
> "But even in a million years, and in ten million years, if the human race lasts as long as that, which it probably will, science, created by the mind, directing force and acting on matter will rule the world.
>
> "When you find a faith healer who can build a hen house with faith and without tools, or move a pebble half an ounce in weight without touching it, when you are willing to trust your plumbing to a faith plumber who says he can cure the leak by thinking about it, then trust your body and your internal plumbing to the medical plumber who cures with thought."

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

[Note.—The pamphlets containing the outline of the postgraduate study course for county societies for the coming year are now ready for distribution. Secretaries of county societies can secure supplies by writing to the Secretary, Council on Health and Public Instruction, American Medical Association, 535 Dearborn Ave., Chicago.]

First Month—First Weekly Meeting

General Subject for the Month: Tumors

Anatomy and Histology: Epithelial Tissue

ORIGIN, STRUCTURE, CELLS AND STROMA

Varieties: Simple and compound.

Shape, Arrangement and Distribution: (1) pavement, (2) cubical, (3) columnar, and (4) ciliated. Describe ciliary motion, causes.

Transitional Epithelium: Arrangement, distribution and location.

Stratified Epithelium: Shape, arrangement and distribution.

Nutrition of Epithelium: Chemistry of epithelium.

Connective Tissues

ORIGIN, STRUCTURE, FUNCTION

Areola: Distribution, structure, microscopic appearance, cells, matrix, white and yellow fibers.

Fibrous: Distribution, structure, functions.

Elastic: Structure, distribution, histology.

Adipose: Distribution, structure, function, nutrition.

Lymphoid and Retiform: Distribution, histology.

Jelly-like: Stricture, chemistry, distribution.

Cartilage: Varieties, structure, function, chemistry.

Bone: Chemistry: structure (gross and microscopic), nutrition.

Blood: Corpuscles (red and white), plasma, serum and fibrin.

Muscular Tissue

ORIGIN, VOLUNTARY AND INVOLUNTARY

Striated and Plain: Distribution of each.

Striated, Voluntary: Epimysium, perimysium, endomysium. Sarcolemma and contractile substance. Sarcomere, sarcostyle and contraction. Attachment to tendon. Nutrition of muscle. Nerve supply.

Plain, Involuntary: Distribution. Shape, size, arrangement of cells.

Cardiac Muscle: Differs from others.

Nervous Tissue

ORIGIN, CENTRAL AND PERIPHERAL SYSTEMS

Cells and Fibers: Distribution.

Fibers.—Medullated: Sheath, axis cylinder, neurilemma, nuclei, nodes of Ranvier.

Non-Medullated: Transverse and longitudinal sections.

Cell: The neuron, cell body, dendrites, axite.

Bipolar cells, distribution, function, description.

Multipolar cells, Golgi cells, two types.

Histology of the cell, staining, shape, size, etc.

Nerve degeneration and regeneration.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Iowa: Capitol Building, Des Moines, September 19-21. Sec., Dr. Guilford H. Sumner.

Massachusetts: State House, Boston, September 12-14. Sec. Dr. Edwin B. Harvey.

Missouri: Kansas City, September 25-27. Sec., Dr. Frank B. Hiller, Jefferson City.

New York: September 26-29. Mr. Harlan H. Horner, Chief of Examinations Division, Department of Education, Albany.

Virginia June Report

Dr. R. S. Martin, secretary of the Medical Examining Board of Virginia, reports the written examination held at Richmond, June 20-23, 1911. The number of subjects examined in was 9; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 117, of whom 93 passed, including 3 osteopaths, and 24 failed, including 2 osteopaths. Nine candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
[illegible]	(1911)	82, 89
[illegible]	(1890)*	
[illegible]on	(1888)*	
[illegible]	(1910) 81; (1911)	82, 82, 84
[illegible]	(1899)*	
[illegible]	(1888)*	
[illegible]d Hospital, Chicago	(1911)	84
[illegible]isville	(1884)*	
[illegible]	(1903)*	
[illegible]	(1911)	81
[illegible]	(1911)	78, 81
[illegible]	(1902)* (1911)	75, 77, 81
[illegible]	(1903)* (1909)	75
Leonard Medical School	(1910) 75; (1911)	75, 77, 79, 81, 81, 81
Woman's Medical College of Pennsylvania	(1911)	80, 81
Jefferson Medical College	(1911)	84
Meharry Medical College	(1911)* (1911)	75, 77, 77, 80
University of Tennessee	(1895)*	
Univ. of Virginia	(1893)* (1910) 82; (1911)	76, 79, 80, 84, 88, 88
Medical College of Virginia	(1910) 77; (1911)	the grade of 75 was reached by five; 76 by two, 77 by one, 78 by two, 79 by seven, 80 by four, 81 by one, 81.5 by one, 82 by two, and 88 by one.
University College of Medicine, Richmond	(1911)	75, 75, 76, 76, 76, 77, 77, 77, 77, 79, 80, 82, 82, 83, 83, 83, 86.

FAILED

College	Year Grad.	Per Cent.
Howard University	(1909)	71
Hahnemann Medical College and Hospital, Chicago	(1910)	71
Maryland Medical College	(1909) 66, 73; (1910) 71; (1911)	73, 73
University of Maryland	(1911)	64
Baltimore Medical College	(1900)*	
Leonard Medical School	(1910) 69; (1911)	59, 60, 74
Hahnemann Medical Coll. and Hosp., Philadelphia	(1911)	72
Meharry Medical College	(1911)	64, 72
University of West Tennessee	(1910)	72
University of the South	(1908)	67, 73
Chattanooga Medical College	(1908)	46
University of Virginia	(1910)	71
Medical College of Virginia	(1884)*	

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
H[illegible]	(1897)	Dist. Colum.
C[illegible]ngton, D. C.	(1899)	Dist. Colum.
N[illegible]	(1910)	Maryland
U[illegible] of Med. and Surg.	(1894)	Michigan
Medical Coll. of Virginia..(1894) N. Carolina;	(1910)	S. Carolina
University of Virginia	(1902)	N. Carolina
University College of Medicine, Richmond	(1910)	N. Carolina
University of Edinburgh	(1896)	Dist. Colum.

* Took oral examination.

Ohio Reciprocity Report

Dr. George H. Matson, secretary of the State Medical Board of Ohio, reports that at the meetings held by that board April 4 and July 5, 1911, 27 candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Reciprocity with
University of Colorado	(1904)	W. Virginia
Columbian University, Washington	(1903)	Maryland
Medical College of Indiana	(1898)	Indiana
Indiana University	(1908)	Indiana
Johns Hopkins University	(1907)	Maryland
College of Physicians and Surgeons, Baltimore	(1909)	W. Virginia
Maryland Medical College	(1906)	Vermont
Baltimore Medical College	(1900)	W. Virginia
Boston University	(1900)	New Jersey
Detroit College of Medicine	(1910)	Michigan
University of Michigan, Dept. of Med. and Surg., (1879) (1908)	(2, 19[illegible])	Michigan
St. Louis [illegible]	(3, 1910)	Illinois
St. Lo[illegible] of Physicians and Surgeons	(1903)	W. Virginia
Colu[illegible]sity, College of Phys. and Surgs.	(1907)	New York
W[illegible]ern [illegible] University	(1909)	New York
Medical [illegible] of Ohio, (1899) Texas; (1899) West Virginia;	([illegible]866)	Indiana
[illegible]ical College	(1895)	Arkansas
[illegible]iversity, Ontario	(1906)	Vermont
[illegible]stern University, London, Ontario	(1909)	Illinois
University of Kharkof, Russia	(1906)	Vermont

Connecticut July Report

Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the written and practical examination held at New Haven, July 11-12, 1911. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 36, of whom 25 passed and 11 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Yale [illegible]	[illegible]10) 78.3, 81, 81.8; (1911)	83.1, 84.[illegible]
Johns [illegible]	(1911)	77.2, 86.8
Baltir[illegible]	(1911)	75, 75.7, 77.9, 79.4
Colleg[illegible] Baltimore,	(1909) 81.8; (1911)	75, [illegible], 79.9, 80.6.
Harvard Medical School	(1910)	80.1
Tufts College Medical School	(1911)	87.1
College of Physicians and Surgeons, Boston	(1911)	75.
Miami Medical College	(1875)	78.4
University of Vermont	(1910)	77.5

FAILED

College	Year Grad.	Per Cent.
Yale University	(1909)	69.9
Baltimore Medical College	(1903)* (1911)	73.7
Maryland Medical College	(1910) 70.4; (1911)	62.7
College of Physicians and Surgeons, Baltimore	(1910)	68.6
University of Maryland	(1908)	55.9
University of North Carolina	(1910)	73.2
University of Pennsylvania	(1911)	70.9
Temple University	(1909)	70.7
Jefferson Medical College	(1911)	74.2

* Withdrew from examination.

Book Notices

[illegible] ÖSARTIGEN NEUBILDUNGEN DER BAUCH- [illegible] hmidt, k. k. primarazt am k. k. Kaiserin [illegible] er. Price, 14 marks. Pp. 355. Vienna: (American Publishers: Rebman Co., New York), 1911.

The diagnosis of tumors of the abdomen has always been a matter of difficulty. The good results following operation on many such tumors, even malignant ones, make it incumbent on the physician to make as early and as accurate a diagnosis as possible. To one aiming to do this and conscious of the difficulties, Schmidt's book will be of peculiar help.

One good thing about this work is that the author sticks to his text. He talks of malignant growths and not of the non-malignant; there is little of etiology, pathology or treatment, except as it has a direct bearing on the question of diagnosis; there is no needless argument about things theoretical; there is almost nothing of the polemic. There are occasional lapses into unnecessary repetition, but conciseness is the rule.

The book is essentially clinical and based largely on the author's own experience. There is little of quotation or citing of authorities, though one cannot accuse Schmidt of being ignorant of what others have written, for there is clear evidence that he is well informed. Not only does he rely largely on clinical facts in order to reach a diagnosis, but he is inclined to believe that the study of cases of malignant growth from the clinical aspect may throw a great deal of light on the question of etiology. He questions whether the laboratory will detect the one specific cause. He sees the operation of so many contributing factors that he regards the development of a malignant growth as often depending, in part at least, on such facts as a previous freedom from infectious diseases, the existence of dyscrasic conditions producing cell trauma, even the influence of depressing psychic causes.

In line with his emphasis of the clinical features of these neoplasms is his relegation of what are commonly termed laboratory methods to a position of secondary importance. It is not to be understood that he overlooks the aid of the laboratory. Far from it. His directions as to laboratory technic and the value of such examinations are clear and detailed. Yet, the greater importance seems to attach to the history, the symptoms and the examination of the patient's body. The necessity of careful and repeated examinations of the stools for occult blood is referred to over and over again. Yet Schmidt issues a note of warning against the employment of tests that are too delicate and that might detect minute traces of blood which mean nothing in the way of disease. Such tests, he says, may be of chemical but not of clinical interest; they are of "decorative" rather than practical value (p. 97). The various functional tests of the kidney he regards as of slight reliability. He seems loath to employ even instrumental help; the *x*-ray must not be relied on too implicitly; it is rarely necessary to distend the stomach or bowel as an aid to diagnosis. Careful study of the history with attention to even the minutest symptoms, with thorough physical examination will make the laboratory and instrumental examinations not unnecessary but rather auxiliary or confirmatory. Is not this, after all, the right view? Two points in physical examination are often referred to, the one the help to be derived from palpation with the patient in the lateral decubitus, with which one must heartily agree. The other is the stress laid on the value of auscultation for murmurs in the diagnosis of tumors of the stomach, liver, gall-bladder, pancreas, etc. To us, this method seems not to warrant the overemphasis placed on it by Schmidt. The methods of the teacher are seen in a tendency to reduce diagnostic symptoms to tabular form. This is helpful, though at times the tables seem rather artificial and too refined. Take, for example, his subdivision of the pains of carcinoma of the stomach. Stripped of its classification, it means that carcinoma of the stomach may cause pain anywhere in the region of the body from the upper thorax to the symphysis pubis.

The portrayal of the features of typical cases is excellent, but the great value of the book lies in its discussion of atypical cases and its reference to possible misleading symptoms. The exceptional case is the one apt to confuse and is the one on which the author dwells particularly.

We should like a clearer differentiation between ulcer of the stomach and carcinoma. The author's statement that few cases of carcinoma of the stomach originate in ulcer will be questioned by many, though the relation between these two conditions is by no means definitely established. Cardiospasm as a misleading condition should be mentioned in discussing gastric cancer. Other minor features might be criticized, the criticism based largely on the fact that one's personal experience does not tally exactly with that of the author. But the book, as a whole, merits praise as a valuable contribution to the clinical study of malignant tumors of the abdomen.

The last half of the book is taken up with abstracts of cases. The abstracts are excellent. It was from a study of these cases with controlling operation or autopsy that the author was able to write the first half of the book. Numerous references to these cases are to be found throughout the work.

PRACTICAL CYSTOSCOPY AND THE DIAGNOSIS OF SURGICAL DISEASES OF THE KIDNEYS AND URINARY BLADDER. By Paul M. Pilcher, A.M., M.D., Consulting Surgeon to the Eastern Long Island Hospital. Cloth Price, $5.50 net. Pp. 398, with 233 illustrations. Philadelphia: W. B. Saunders Co., 1911.

This is an elaborate and admirably illustrated treatise, in which "the writer has endeavored to state fairly the indications for cystoscopy, and to outline its technic in the minutest detail, describing the instruments used and how to use them." This, the major content of the book, is commendable in conception and execution; it is obviously based on ample personal experience. There is apparent a tendency toward ill-considered statement, such as the possible differentiation by the cystoscope of a dozen varieties of cystitis; the virtual denial of all chance of extending infection by the ureter catheter if skilfully used; and the extravagant eulogy of a certain cystoscope.

Cystoscopy through a suprapubic puncture, occasionally a valuable procedure, seems worthy of mention in every complete treatise on methods for inspecting the bladder. The jumble of Latin and English in a prescription (p. 92), while a merely academic offense, illustrates the lack of care which is often apparent in the text.

The accessory portion of the work, which discusses collateral methods of diagnosis, is less acceptable; indeed, some of this matter is distinctly misleading. Such is the statement (p. 195) "the only way of definitely determining the character of the ulcer" (whether tuberculous or other) "is by finding tubercle bacilli in the urine or by a guinea-pig test." The marked hyperemia around a tuberculous ulcer, which follows a subcutaneous injection of tuberculin, more quickly and surely distinguishes it from other ulcers than does either of the "only" tests recommended.

The book is probably the most complete exposition of cystoscopy in our language, and will repay perusal by any one who uses the cystoscope.

A TEXT-BOOK OF VETERINARY ANATOMY. By Septimus Sisson, S.B., Professor of Comparative Anatomy in Ohio State University, Columbus, Ohio. Cloth. Price, $7 net. Pp. 826, with 528 illustrations. Philadelphia: W. B. Saunders Co., 1910.

This book, of nearly 850 pages, is an evidence of the fact that the study of the anatomy of domestic animals and the making of books thereon is keeping pace with similar work in human anatomy. The author says that this book has been made in response to a demand for a well-illustrated and up-to-date book on veterinary anatomy, and a cursory review would seem to indicate that the purpose has been well fulfilled. The descriptions are clear, full and scientific. The comparative anatomy of the various domestic animals is always kept in view, which adds value to the work. The nomenclature adopted is that of the best authorities in this and foreign countries. The work should rank well with the books on human anatomy and should meet every requirement of the veterinary student. Mechanically, the book is very satisfactory.

Text-Book of Operative Surgery. By Dr. Theodor Kocher, Professor of Surgery and Director of Surgical Clinic in the University of Bern. Third English Edition. Authorized Translation from the Fifth German Edition by Harold J. Stiles, M.B., F.R.C.S., Edin., Surgeon to the Chalmers Hospital, Edinburgh, and C. Balfour Paul, M.B., F.R.C.S., Edin., Assistant Surgeon, Royal Edinburgh Hospital for Sick Children. In Two Volumes. Cloth. Price, $12 net. Pp. 723, with 415 illustrations. New York: The Macmillan Co., 1911.

Kocher's "Operative Surgery" has been before the profession for several years and is well known by all who practice surgery. This is the third English edition translated from the fifth or last German edition. The translation has been very well done; one seldom sees a translation from the German that reads as smoothly as does this.

In reading the author's preface one cannot help being charmed by his great earnestness and by his endeavor to impress on all who essay to do surgery the great responsibilities which rest on them. These delightful features are stamped on every page of the work for the author does not simply describe typical and classic procedures but he deals with conditions and each operation is given that touch of life which marks the author as a master and a great teacher. One short quotation under "Surgery of the Gall-Bladder and Bile-Ducts" will suffice to illustrate what is meant:

"Surgeons should realize that it is their duty to the patient to pull him through his illness and not to perform an operation that is classic. This object cannot be obtained by any routine operation, whether based on old or on the most modern theories. Operations which are theoretically excellent when put in practice may often cause the death of the patient because his individual needs are not taken into consideration."

It is this attempt of the author to individualize, coupled with his great experience, which gives to this work its great value.

The only criticisms to be made are those relating to the publisher. The work appears in two volumes instead of one—as in the original German edition—although there are but 723 pages all told, including the index. To give the volumes the appearance of size unusually thick and heavy paper is used. Many large illustrations are unnecessarily duplicated, some of them as often as four times, etc. These defects should be corrected.

It might also be well, in view of the prominence of the translator, to give him the recognition to which he is entitled by placing his name on the back of the volumes below that of the author.

Kursus der normalen Histologie Ein Leitfaden für den praktischen Unterricht in der Histologie und mikroskopischen Anatomie. Von Rudolf Krause, a.o Professor der Anatomie an der Universität Berlin. Paper. Price, 22 50 marks. Pp. 441. Berlin: Urban & Schwarzenberg (New York: Rebman Company), 1911.

The special object of Professor Krause's book is to promote the practical instruction of students in histology and microscopic anatomy. The plan is that the student himself shall prepare most of the preparations described. For this purpose the freezing method is used as well as the paraffin and celloidin methods. Particular emphasis is placed on the value of drawings in the study of the microscopic preparations and all the illustrations—about 208, reproduced by autotype—have been drawn in colors by the author himself. We fear that only few of the students ever reach the standard he has established. The book is divided into two general parts; the first deals with technical matters; the second takes up the cell, the tissues and the organs of the animal body. The text of this part is in reality a plain and succinct explanation of the illustrations together with statements as to the technical methods employed in preparing the objects illustrated. Most of the preparations are of human origin. The illustrations are really very fine. While it is quite obvious that the book has been prepared with direct reference to German conditions, it undoubtedly will prove to be a highly useful book anywhere. It is recommended heartily to the consideration of American teachers of normal histology in the hope that it may prove of assistance in imparting to their students a working knowledge of the microscopic structure of the body and of microscopic technic, heretofore as a rule but indifferently accomplished if we are to believe the testimony of the teachers of pathological anatomy and of clinical laboratory work.

The Fats. By J. B. Leathes, M.A., M.B., F.R.C.S., Professor of Pathologic Chemistry in the University of Toronto. Cloth. Price, $1.25 net. Pp. 138. New York: Longmans, Green & Co., 1910.

Although not all the promised monographs of this series have yet appeared, already one of the earlier ones has come to a second edition. This is satisfying evidence that the value of these publications is being recognized. So rapidly changing is the subject-matter of biochemistry that no other form of publication can well be so efficient as the one adopted here; namely, inexpensive monographs written by specialists, each covering that part of the entire field with which each writer is most intimately acquainted.

"The Nature of Enzyme Action," the first of the series to enter a second edition, covers adequately and accurately this interesting and fundamentally important subject. Presented originally in the form of lectures, it is more easy to read and assimilate than treatises of this sort are likely to be, a point of particular favor in the eyes of readers who are interested in the subject only in its general aspects. In the new edition the more recent contributions to enzyme chemistry and the theories of enzyme action have been incorporated, the author assuming the reasonably conservative attitude necessary in considering a subject in which theorization is so prominent.

The monograph on fats, by Professor Leathes of Toronto will particularly interest scientific physicians because of the rapid increase of our knowledge of the importance of fats and related substances in biologic processes. Until recently looked on as merely stored food material, the fats and lipoids have now been revealed as vitally concerned in cell activities, almost if not quite as much so as the proteins themselves. They enter, not only into normal processes, but also into the phenomena of immunity, and they modify or determine the effects of many of our most important drugs. With admirable conciseness, but without impairment of reliability, Professor Leathes presents the latest reliable information concerning the chemical composition and behavior of the fats and "lipines" (as he prefers to call the compounds of fatty acids which contain nitrogen), their physical properties, methods of analysis, and the part played in physiology. From our point of view we should have preferred more on the physiologic aspects, concerning which the author himself has made most interesting and inspiring contributions, but as the physiologic side is at present much more speculative than the chemical, the concession of most of the space to the established matter is perhaps the part of wisdom. In any case, the scientific physician will find in this monograph as much to interest and enlighten as in any member of this valuable series.

Die Hodgkinsche Krankheit. Von Dr. Kurt Ziegler, Privatdozent in Breslau. Paper. Price, 9 marks. Pp. 204, with illustrations. Vienna: Gustav Fischer, 1911.

This book is an exhaustive treatise on the subject of Hodgkin's disease. The literature is reviewed fully and the author gives his own observations based on a study of seventy cases, in sixteen of which autopsies were held, and in forty cases microscopical examinations of diseased glands were made. In accordance with the present tendency he considers the disease as a specific inflammatory process. The histology is especially well illustrated in five plates with twenty-two beautiful colored pictures. The completeness of the work is well shown in the 600 literary references at the end of the volume. This extensive monograph will take a foremost rank among the treatises on this strange disease.

Psychiatrische Vorträge für Aerzte, Erzieher und Eltern. (Zweite Serie). Von Prof. Dr. G. Anton, Direktor der Klinik für Geistes- und Nervenkranke in Halle a. S. Paper. Price, 2 marks. Pp. 77. Berlin: S. Karger, 1911.

This series of popular lectures on psychiatric themes was prepared for physicians, educators and parents. They constitute good reading and appear under the following titles: "1. The Expression of the Emotions in Healthy and Diseased Persons." "2. Mental Epidemics of Past and Present." "3. Normal and Abnormal Development of the Child." "4. Alcoholism and Heredity." "5. The Causation and the Operative Treatment of Epilepsy." These lectures are written in popular style and can be safely put into the hands of any educated person.

Medicolegal

Denial of Sexual Intercourse as Ground for Divorce, Especially When a Matter of Health

(*Raymond vs. Raymond* (*N. J. Ch.*), *79 Atl. R. 430; Lohmuller vs. Lohmuller* (*Tex. Civ. App.*), *135 S. W. R. 751.*)

The Court of Chancery of New Jersey holds that a spouse's wilful refusal to engage in sexual intercourse is desertion under the statute, making desertion a ground for divorce, and, hence, where a husband refused to consummate the marriage by sexual intercourse, he deserted his wife, even though he supported her, and they lived under the same roof. It says that the cases generally admit that unjustifiable withdrawal from marital cohabitation constitutes desertion. Marital cohabitation implies necessarily something more than merely living under the same roof. Where will the line be logically drawn, unless it is held that to constitute matrimonial cohabitation it must include those duties which distinguish the marital from every other contractural relation? When cohabitation in its true sense in the marriage relation ceases, desertion commences.

But the Court of Civil Appeals of Texas holds that a decree of divorce was wrongly granted where the testimony of the plaintiff showed that the sole ground for the divorce was a refusal on the part of his wife to sacrifice herself to his sensual desires, the uncontradicted evidence showing that she was a nervous, frail woman, who would probably die if she bore another child, and the plaintiff was fully advised of that fact by the family physician, and he was also told that he should not demand that his wife submit to his embraces, except under certain conditions, which conditions the plaintiff stated rendered him nervous and made him sick, but which the only physician who testified stated could not and did not injure him; in fact, could have no hurtful effect whatever. The refusal to accede to the passion of a man who knew that childbearing would destroy the life of his delicate, nervous wife, and who was unwilling to inconvenience himself in any way to prevent such a catastrophe, would not constitute such "excesses, cruel treatment, or outrages" toward him as would entitle him to a dissolution of the marriage ties. Even an unjustifiable refusal of marital rights is not necessarily a cause for divorce, and when there is no refusal but merely certain conditions are prescribed which cannot injure the husband, but will protect the wife from probable death, the divorce should not be granted.

Railroad Companies Not Liable for Malpractice in Hospital Departments—Office of Physicians

(*Arkansas Midland Railroad Co. vs. Pearson* (*Ark.*), *135 S. W. R. 917.*)

The Supreme Court of Arkansas had in this case for decision for the first time for that state the question of the liability for malpractice of a railroad company maintaining a hospital department out of funds deducted from the wages of employees. Its conclusion is that the law was correctly stated in an instruction given to the jury that, even though the hospital at St. Louis and the local surgeons at different points on the railway system of the company, were maintained by small sums of money deducted monthly from the wages of the employees of the company, yet the only duty which it owed its employees in regard to medical and surgical attention was to use reasonable care in the selection of physicians, surgeons or attendants.

It is generally held, the court says, that hospitals conducted for charity are not responsible for the negligence or malpractice of their physicians, and that persons and hospitals which treat patients for hire, with the expectation and hope of securing therefrom gain and profit, are liable for such negligence and malpractice on their part.

This hospital department could not be said to be conducted as a charity, for only those employees who had contributed the fees deducted from their wages for its maintenance were entitled to enter there for treatment, and all the physicians and employees required to maintain and operate it were paid from such fund. Nor could it be said to have been administered by the railroad company out of pure philanthropy, since it may have had some benefit therefrom in decrease of amount of damages for injuries caused in the operation of the road, and the better and more efficient service to the company of its employees because of its maintenance. It was also true that none of the employees was required to accept the treatment provided at the hospital, and none could do so unless before their service with the railroad company was ended, thus in effect creating a fund for the benefit of themselves, it might be, and certainly for others.

It was not contemplated by the employees in their contribution to this fund that it should be used in the payment of damages for the negligence or malpractice of physicians employed in the operation of the hospital department, and certainly the railroad company that assumed gratuitously to collect and preserve the fund and provide hospital accommodations and competent physicians and surgeons to operate it, without any profit or gain or hope thereof therefrom, should not be required to pay damages for such negligence or malpractice; it being no part of its business under its charter to maintain a hospital. At most it could be considered only a trustee for the proper administration and expenditure of the fund, and should be held only to ordinary care in the selection of competent and skilful physicians to administer relief and provide attention to sick and injured employees. If the railroad company did in fact realize a profit from the total deductions from the wages of its employees for the hospital fund, after paying for the support and maintenance thereof and the employment of physicians, or if it agreed and contracted with such employees in consideration of the fees paid by them to furnish proper medical attention, the rule might be different.

A physician cannot be regarded as an agent or servant in the usual sense of the term, since he is not and necessarily cannot be directed in the diagnosing of diseases and injuries and prescribing treatment therefor; his office being to exercise his best skill and judgment in such matters, without control from those by whom he is called or his fees are paid.

Powers Conferred by Statute on Board of Health—Unwarranted Regulation of Sale of Milk

(*Commonwealth vs. Drew* (*Mass.*), *94 N. E. R. 682.*)

The Supreme Judicial Court of Massachusetts says that this was a complaint against the defendant for violation of a regulation of the board of health of the city of Boston which provided that: "No person or corporation shall sell or offer, expose or keep for sale in any shop, store or other place where goods and merchandise are sold, milk or cream, unless the same is sold or offered, exposed or kept for sale in tightly closed or capped bottles or receptacles which have been approved by the board of health." The court does not consider the question whether this regulation went beyond the constitutional power of the legislature to enact as a statute, or to authorize the board of health to establish locally, but simply holds that the statute under which the board assumed to act was not broad enough to give authority for it. That statute was as follows: "The board of health shall examine into all nuisances, sources of filth and causes of sickness within its town, or on board of vessels within the harbor of such town, which may in its opinion be injurious to the public health; shall destroy, remove or prevent the same, as the case may require, and shall make regulations for the public health and safety relative thereto and relative to articles which are capable of containing or conveying infection or contagion, or of creating sickness, which are brought into or conveyed from its town, or into or from any vessel."

That statute does not give the board power to make regulations as to all matters affecting the public health. If the board should be certain that the smoking of cigarettes by boys affects their health injuriously, it would have no power to make a regulation forbidding the smoking of them by boys under a certain age, or the sale of them to such boys. It has no power to make general regulations as to conduct or practices injurious to health, which, if indulged in by many persons, affect the health of the public.

The statute gives the board jurisdiction to deal with "nuisances, sources of filth and causes of sickness within its town." It was agreed that the milk kept for sale by the defendant was kept in a vessel contained in a covered cooler; that it was always kept at a temperature less than 50 degrees Fahrenheit, and that none of it was allowed to stand outside of the cooler except while a sale of milk was being made; that the cooler was always kept properly drained and cared for and tightly closed, except during such interval as was necessary for the introduction or removal of milk or ice, and was kept in such location and under such conditions as were approved by the board of health. The milk was wholesome milk of standard quality, was taken from a clean, new tin cylinder or vessel, set in a clean, new ice chest, surrounded by clean, wholesome ice. The vessel had a removable cover which was new and clean, and the measure which was used by the defendant in retailing the milk was new and clean, and hung inside the tin cylinder so that it was not exposed to the air. The cylinder was simple in shape, was easily cleaned and was susceptible of perfect sterilization. The sales were made in any quantities desired by customers from one cent's worth upward. Plainly the milk in question was not a nuisance or a source of filth.

In determining the meaning of the words "causes of sickness," the doctrine of *noscitur a sociis*, or the meaning of a word is or may be known from the accompanying words, was to be applied. Primarily it referred to something local, and the board was directed "to destroy, remove, or prevent the same."

The court is further of the opinion that, within the meaning of the language of the statute, milk kept in a vessel, as this was kept by the defendant, was not a "nuisance, source of filth, or cause of sickness," which gave the board of health jurisdiction to take any action or make any regulation under the portion of the statute which gives the board jurisdiction to make regulations "relative to articles which are capable of containing or conveying infection or contagion, or of creating sickness, which are brought into or conveyed from its town, or into or from any vessel." That has reference to the bringing into the town or conveying away of articles capable of containing or conveying infection, in such a way as to affect injuriously the public health or safety. It relates to articles of such a kind as to be dangerous in reference to their capability of containing or conveying infection or contagion, or of creating sickness, in connection with their removal from one town to another. Pure milk is not such an article as is referred to in the statute.

Another Court Holds Chiropractic a Practice of Medicine—Sufficiency of Complaint and Validity of Law—"Adjustments" are "Treatments"

(*State vs. Greiner (Wash.), 114 Pac. R. 897.*)

The Supreme Court of Washington affirms a conviction of the defendant who was charged with practicing a mode of treatment of the sick and afflicted known as chiropractic, without having at the time of so doing a valid, unrevoked certificate to practice such mode of treatment from the proper authorities. The court says that the Code makes it a misdemeanor for any person to practice, or attempt to practice, or hold himself out as practicing, medicine and surgery, osteopathy or any other system or mode of treating the sick or afflicted in the state of Washington, without having at the time of so doing a valid, unrevoked certificate from the Board of Medical Examiners of the state, entitling him so to do. The complaint, while not to be recommended as a model, charged in effect that the defendant, at a time and place certain, did wilfully and unlawfully practice a mode of treatment of the sick known as chiropractic, without having a license therefor from the proper authorities, in that she did then and there prescribe, direct and recommend certain treatment for the cure and relief of certain bodily infirmities and diseases of the complaining witness. That was sufficient. It was not necessary, under the Washington Code, that the acts constituting the offense be set forth in the complaint with the technical precision required at common law.

It was a material fact in the case that the defendant used a vibrator on the prosecuting witness.

The evidence, it was argued, was insufficient to justify a conviction. The statute, it will be noticed, makes it an offense to practice any mode of "treating" the sick and afflicted, and the defendant testified that, instead of using treatments for the ailments of the prosecuting witness, she used "adjustments," and hence was not guilty of any violation of the statute. But the court thinks that was a mere play on words. Her methods were fully described in the record, both by the prosecuting witness and by herself, and to the mind of the court they fell as well within the definition of "treatment," as they did of "adjustment." She had the patient remove her street clothing and put on a kimono; she diagnosed the patient's ailments with the aid of a vibrator; she manually manipulated the supposedly diseased parts; she prescribed a dietary for the patient; she collected a fee, and advised the patient to return for further manipulation. That, so far as the court's observation extends, did not differ materially from the methods of unlicensed practitioners generally, who confessedly give treatments for the sick and afflicted.

It was finally objected that the act under which the defendant was prosecuted was unconstitutional. It was objected, first, that it embraced more than one subject, and, second. that the science practiced by the defendant was not a subject for regulation by the legislature. Neither of these objections was well founded. The purpose of the act is to regulate the mode of treating the sick and afflicted, and the fact that it may contain provisions affecting a variety of practitioners, having different systems and methods of treating the sick, does not render it subject to the objection that it contains more than one subject. The science, if it be such, practiced by the defendant is clearly a mode of treating the sick and afflicted. As such it is by all authority subject to regulation. To call the method of treatment "chiropractic" and the treatments given "adjustments" does not change its nature. If the practice has any beneficial purpose at all, its purpose is to heal the sick and afflicted, and to regulate the practice of healing the sick and afflicted is unquestionably within the acknowledged powers of the state.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Surgery, Gynecology and Obstetrics, Chicago

August

1 *Peritonization in Pelvic Surgery, With Special Reference to the Use of the Sigmoid Flexure of the Colon. J. E. Summers, Omaha, Neb.
2 *Epispadias in the Female, and its Surgical Treatment. H. J. Stiles, Edinburgh.
3 *Improved Technic in Brain Surgery. E. W. Andrews, Chicago.
4 *Salt Solution as a Filling for Bone Cavities and for Vacant Spaces in the Hard and Soft Tissues. H. M. Sherman, San Francisco.
5 *Subcutaneous Injection of Normal Human Blood Serum to Prevent and Overcome Postoperative Hemorrhage in Patients With Chronic Jaundice. W. Meyer, New York.
6. Perforating Bullet Wounds of the Femoral Artery and Vein Resulting in Aneurysmal Varix; Two Wounds in Each Vessel Closed by Sutures; Recovery. G. T. Vaughan, Washington, D. C.
7 *Open Treatment of Transverse Fracture of the Femoral Shaft. E. Martin, Philadelphia.
8 Primary Heart Failure in Normal Subjects Under Ether. Y. Henderson, New Haven, Conn.
9 Chloroform Anesthesia. J. E. Moore, Minneapolis, Minn.
10 *Uninterrupted Anesthesia in Operations on Face and Mouth. E. Souchon, New Orleans, La.
11 *Nitrous Oxid Anesthesia and [illegible] in Operative Surgery. G. [illegible]
12 *Recent Cases of Inoperable [illegible] With Mixed Toxins of Ery[illegible] W. B. Coley, New York.
13 *Intestinal Perforation in Typhoid. C. Bagley, Baltimore, Md.
14 Two Cesarean Sections on Unusual Indications. E. Essen-Möller, Sweden.
15 Treatment of Compound Fractures. C. Beck, Chicago.
16 Treatment of Fractures of Long Bones. W. Hessert, Chicago.
17 *Intestinal Anastomosis by Invagination. W. W. Grant, Denver, Colo.
18 *New Operation for the Vaginal Shortening of the Utero-Sacral Ligaments. H. Jellett, Dublin, Ireland.
19 *Local Uses of Formalin. J. C. Stewart, Minneapolis.

1. Peritonization in Pelvic Surgery.—The procedure to which Summers refers particularly and one with which he has had many personal experiences, consists in transporting the sigmoid flexure across the pelvis and suturing it in such a way that all raw surfaces are covered over. The sigmoid is only fixed below and is almost always sufficiently mobile to be carried across the pelvis to the right side as far as the cecum. When the uterus is preserved the sigmoid is sutured to the lateral walls of the excavation and across the fundus of the uterus. When the uterus is sacrificed the sigmoid is sutured to the lateral walls of the excavation and to the bladder. Drainage should be made through the vagina. Except in cases of total hysterectomy, Summers has almost always employed a cigarette drain coming out of the extraperitoneally excluded space between two of the stitches, tacking the sigmoid flexure in position and draining externally at the lower angle of the abdominal incision. The fastening of the sigmoid as indicated has never, in a large number of cases in which Summers has used the method, interfered in any way with the function of the bowel. This technic is said to be particularly advantageous when septic pus or genital abscesses communicate with the intestine; for example, a pyosalpinx, or suppurating tumor of the ovary, opening into the large bowel; again, when there coexist a genital abscess with a perforative appendicitis. The intestinal sutures are situated under the protection of the cavity drained and are extraperitoneal.

2, 3 and 7. Abstracted in THE JOURNAL, July 29, 1911, pp. 414 and 415.

4. **Salt Solution as Filling for Bone Cavities.**—Some years ago, in doing an operation for the removal of the Gasserian ganglion, Sherman wounded the dura mater and had to suffer, during the operation, from the annoying leakage of cerebrospinal fluid. When it came time to close the wound the squeezed-up brain in the collapsed sac of the dura mater did not readily expand to fill the space within the skull. In order to avoid leaving a large amount of air in the wound, Sherman poured in sterile physiologic salt solution, and sutured the scalp over it. The wound healed normally and the patient recovered uneventfully. Since then he has used salt solution to fill all cavities or spaces that could not be closed by suture, except that he has not used it in cavities or spaces that were actually or potentially septic.

In four instances children presenting themselves with the symptoms and signs of hip-joint tuberculosis were shown, by radiogram, to have localized tuberculosis foci or abscesses in the diaphysial portion of the femoral neck. In these instances Sherman has opened the trochanter by a trephine, extended the wound to the abscess, cleaned it out and removed the softened bone around it, and then filled the cavity with physiologic salt solution and sutured the fascia and integument over the bone wound. In one instance there occurred normal healing which was permanent, the tuberculous process stopped and the child made a relatively quick and complete recovery, which has been permanent for four years. In two instances there occurred normal healing, but the tuberculosis was not controlled and the cases followed the usual course of a hip-joint tuberculosis, not benefited by the operation. In the fourth instance there occurred normal healing and the child returned home in a plaster-of-Paris spica. Within a month after the operation an acute pneumonia developed and caused death. Sherman secured the head, neck and trochanter on which he had operated. The wound cavity he had made in the trochanter and neck was filled by a layer of granulation tissues with a blood clot, apparently undergoing absorption, in the center. Four other cases are cited.

The method is, in reality, a reversion to Schede's filling, but with an improved technic, *in that the wound is not closed* before the removal of the Esmarch tourniquet, nor is a drainage arranged for. Instead of this, hemostasis is secured in the usual way, then the bone wound is *filled with* the salt solution and the soft tissues are sutured closely with no drainage. In all instances so far healing has been normal and permanent.

5. **Normal Human Blood-Serum to Prevent Postoperative Hemorrhage.**—This procedure, first used by J. E. Welch as a curative agent in hemophilia neonatorum, has been resorted to by Meyer in four cases with good results. The jaundice in all of the four cases reported was due to carcinoma. In none did any parenchymatous hemorrhage occur after the prophylactic and postoperatively resumed injections of normal human blood-serum. The favorable outcome in the first case was remarkable: after the preliminary injection of a total of 105 c.c. (3½ ounces) of normal human blood-serum, no more being on hand, and 30 c.c. directly after the operation, a severe intestinal hemorrhage sets in ninety hours after operation; patient's condition desperate. Under resumed serum treatment the fever soon drops, bleeding ceases permanently, and patient recovers. Meyer says that the injections should be started at least two days before operation, 30 to 60 c.c. (1 to 2 ounces) to be administered three times per day, and should be continued right after operation for another forty-eight to seventy-two hours. It is wise to provide for the serum in time; both cephalics of two healthy individuals should be tapped; they will yield from 300 to 400 c.c. (10 to 14 ounces) of serum. Wassermann's reaction should, of course, be made; it does not seem of great importance, according to Meyer's observations, to test and follow up the coagulation time of the blood, although the latter appeared repeatedly reduced in course of the serum treatment.

10. **Uninterrupted Anesthesia in Operations on Face and Mouth.**—Souchon has devised a small apparatus for the purpose of keeping up the anesthesia uninterruptedly by introducing a rubber tube into the throat through the nose and mouth.

11. **Nitrous-Oxid Anesthesia.**—On the theory that nitrous oxid owes its anesthetic property to its power of limiting oxidation in the brain tissue, and the theory that shock is due to an exhausting activity of the brain cells due to injury, Crile says one might very properly infer that the brain cells were by nitrous oxid prevented from making the harmful expenditure of energy, thus minimizing the shock. The exclusion of fear and of trauma from the brain prevents any nocuous associations. This state is expressed by Crile by coining a new word, viz., anoci-association. Operations on neurasthenic subjects under anoci-association preserves to a remarkable degree the nervous system.

12. **Treatment of Inoperable Sarcoma.**—Up to the present time Coley has had sixty-five cases of inoperable sarcoma in which the tumors disappeared under the use of mixed toxins of erysipelas and bacillus prodigiosus. The utmost efforts have been made to trace the after-histories of these cases, with the following results: Seven remained alive and well at the end of fifteen to eighteen years. Seven remained alive and well at the end of ten to fifteen years. Seventeen remained alive and well at the end of five to ten years. Ten remained alive and well at the end of three to five years. That is, forty-one cases remained well from three to eighteen years, or thirty-one from five to seventeen years. As to the correctness of the diagnosis in these cases, Coley says that they were practically selected cases, i. e., selected by the leading surgeons of America, as hopeless, inoperable cases. In all of these cases, with exception of four, the diagnosis was confirmed by careful microscopic examination, in most cases not by one, but by several of the most competent pathologists. In order to still further eliminate all chance of error in diagnosis in a large number of the cases, there was a history of very rapid growth and repeated recurrence after operation. If further evidence were needed, it is furnished by a small number of cases in which, after the complete disappearance of the tumor under the toxin treatment, the disease afterward recurred locally and generally and caused the death of the patient.

13. **Intestinal Perforation in Typhoid.**—Bagley presents the results of a statistical study of all cases of intestinal perforation in typhoid recorded in the literature from 1884 to the present.

17. **Intestinal Anastomosis by Invagination.**—By *invagination* Grant *means a complete invagination of one gut bodily into another, the lower end of the upper segment, preferably 2 or more inches.* He reports one case of obstruction in the sigmoid due to a small tumor in which he employed the method successfully. A long, curved, strong-bladed forceps was inserted through anus and rectal segment, and the latter being very much constricted at inner, or upper, end was

stretched by spreading the blades of the forceps. The upper, or sigmoid segment, was grasped by the forceps and pulled through rectum and anus, making a snug fit at the upper rectal opening. The peritoneal cavity was now flushed with warm salt solution. Two or three interrupted stitches were applied to the invaginated gut and lower posterior uterine surface, the latter being the only fairly normal tissue in the vicinity. The patient was now put in lithotomy position, and the sphincter ani divided subcutaneously, in order to facilitate drainage. The invaginated gut was fixed with four silkworm-gut sutures to the mucocutaneous margin; and as an additional precaution against retraction and premature cutting through of the sutures, a safety pin was passed through a segment of the gut. For drainage, a rubber tube was inserted between the rectal mucosa and invaginated segment, and another through the invaginated or upper segment. By this means, drainage of both the pelvic peritoneal cavity and intestines was provided for. The abdominal wound was closed without drainage and patient put to bed in the Fowler position.

18. **Vaginal Shortening of Utero-Sacral Ligaments.**—This operation consists in exposing the utero-sacral ligaments at their insertion into the uterus, in cutting them off at the uterus, and in bringing them round in front of and below the cervix, and at the same time shortening them as may be found necessary, so that they become again a support to that part of the uterus. The operation is said to be indicated in cases of prolapse of the uterus due to or associated with elongation of these ligaments. Jellett says that if there is prolapse of the uterus alone, unaccompanied by prolapse of the vagina, then shortening of these ligaments followed by any operation for the cure of backward displacement, e. g., ventral suspension or Alexander's operation, is usually sufficient. If the perineum is torn, its repair and the suture of the levator ani muscles are also necessary. If the vagina is everted, and particularly if there is a large cystocele, Wertheim's interposition operation also is indicated, provided the patient is past the child-bearing period, or, if not, that the tubes are divided at the same time. If the patient is still likely to have children, an ordinary anterior colporrhaphy is safer. If the cervix is markedly hypertrophied in the supravaginal portion, then supravaginal amputation is also necessary. In a typical case of complete prolapse, with eversion of the vagina, hypertrophy of the cervix, and tearing of the perineum, Jellett usually performs an operation consisting of the following steps: 1. Curetting. 2. Supravaginal amputation of the cervix. 3. Shortening of the uterosacral ligaments by the vaginal route. 4. Interposition of the uterus (Wertheim's operation). 5. Colopoperineorrhapy.

19. **Local Uses of Formalin.**—Stewart has found that the 40 per cent. solution of formaldehyd is useful locally in infected wounds as a germicide. It should be used freely, left approximately one minute and then neutralized by abundant solution of hydrogen peroxid. In ulcerative offensive cancers its use checks discharge and odor with little pain. The fungus of sarcoma can be controlled very perfectly by this agent without bad results.

Lancet-Clinic, Cincinnati

August 19

20 Appendicitis Cases and Deductions. M. A. Tate, Cincinnati.
21 Intestinal Infections of Infancy and Childhood and Their Treatment. J. B. Ballinger, Bradford, O.
22 Venereal Prophylaxis. L. H. Montgomery, Chicago.

Journal of Nervous and Mental Diseases, Lancaster

August

23 *Etiology of the Occupation Neuroses and Neuritides. W. E. Paul, Boston.
24 *Pachymeningitis Interna. I. W. Blackburn, Washington, D. C.

23. Abstracted in THE JOURNAL, July 29, 1911, p. 417.

24. **Pachymeningitis Interna.**—Blackburn is convinced that the essential feature of the condition is the primary formation of a fibrinous exudation on the inner surface of the dura mater as the result of some form of irritation, and that at the same time the dural surface is to a great extent denuded of its endothelium, which permits of the emigration of leukocytes and proliferated connective tissue cells into the meshes of the fibrinous layer. These cells then begin to show formative activity, fibroblasts are formed which by their growth and fibrillation form a loose connective tissue from which the fibrinous matrix gradually disappears. The new tissue becomes vascular by the formation of wide, thin-walled capillaries which grow into it from the pre-existing vessels of the dura, the process being exactly similar to the so-called organization of inflammatory exudates elsewhere. At first the new membrane may show no hemorrhage and not even pigmentation; it is thin, soft, nearly transparent, and only slightly rose-tinted, by the presence of new capillary vessels; but the thin-walled vessels being under slight abnormal tension due to the congestive hyperemia of the dura, are easily ruptured, and hemorrhage occurs within the membrane or between it and the dura. The effused blood if small in quantity is absorbed in time, leaving pigment behind as a rust-colored stain in the new membrane. Such new membranes may be formed, layer after layer, if the process continues, the newer membranes being formed on the inner surface of the older ones, and subsequent hemorrhages will occur between the lamina as they did primarily between the first-formed layer and the dura.

The organic connections between the new membrane and the dura are at first slight, being only by means of the vascular extension, so that when rupture of a vessel occurs the blood forces its way between the layers, new vessels are torn, and in this way the larger hemorrhages occur, frequently only limited by the margin of the area where the organic adhesions are firmer. Though hemorrhage is almost the rule in these neo-membranes, it is by no means always a prominent feature. Quite frequently in the newest films they are absent, and in some old and well-organized fibrous membranes blood extravasation shows no evidence of ever being prominent. Such neo-membranes from their organization, their firm fibrous character, and their perfect organic junction with the dura may be overlooked, or, if discovered, may be taken by the inexperienced for the inner layer of the dura.

Wisconsin Medical Journal

July

25 *Relation of Physician to the Public Campaign Against Tuberculosis. H. E. Dearholt, Milwaukee.
26 *Rabies in Wisconsin and its Control. M. P. Ravenel, Madison.
27 Treatment of Puerperal Infections. F. W. Van Kirk, Janesville.
28 European Clinics. R. U. Cairns, River Falls.
29 Rupture of Uterus Before Term with Continuation of Pregnancy. F. R. Hyslop, Whitewater.

25 and 26. Abstracted in THE JOURNAL, July 22, 1911, pp. 313 and 315.

Boston Medical and Surgical Journal

August 17

30 Sixty Cases of Syphilis Treated with Salvarsan. J. H. Cunningham, Boston.
31 Boston's Hospital School for Tuberculous Children. E. A. Locke and T. J. Murphy, Boston.
32 Tree Cancer. H. Packard, Boston.
33 *Unusual Monstrosity. J. R. Torbert, Boston.
34 Skin Grafting in the Repair of Contractures Due to Burns. B. Vincent, R. M. Green, J. F. Tomkies and W. T. Graham, Boston.

33. **Unusual Monstrosity.**—In the case cited by Torbert labor started by a high rupture of the membranes. Palpation of the abdomen at this time was most interesting; the uterus was pulled well over to her left side and felt like a bicornuate uterus. In the left cornua was felt a soft solid tumor similar to a breech, but of a firmer consistency; the small parts were on her right and one fetal heart was heard. A head well engaged in the pelvis was felt from above and another breech was palpated on her right side. Labor was short, but the uterine contractions were frequent and severe, and at times the retraction of the median scar looked as if the uterus was about to rupture. After full dilation an easy low forceps operation was done under ether anesthesia and a male baby weighing 4 pounds delivered; the baby cried at birth. In a few minutes the feet of a second baby appeared in the vagina; these feet were clubbed and a monstrosity was then suspected.

Traction on the feet resulted in their coming off. Intrauterine examination disclosed the true condition; the smooth rounded upper pole of the monstrosity prevented any grasp of it. No fissures of the body could be felt in which to insert an instrument. Finally, after repeated efforts, the cranioclast was attached to one thigh extending up on to the abdomen; to the other thigh were attached two French hooks, and with suprapubic pressure and traction from below the monstrosity was delivered. The monstrosity weighed 3 pounds. There was one placenta, two cords and two amnions. The first twin had a temperature of 106 F., and died twelve hours after delivery; there was no autopsy.

The dissection of the monstrosity was interesting, showing an abnormal development of the genito-urinary tract with a deficiency of development of all of the other abdominal organs. The penis is an excellent example of congenital paraphimosis. Both feet were clubbed to a marked degree. On opening the monstrosity in the median line, the subcutaneous tissue was thick and edematous; several cyst-like cavities filled the tissues outside of the chest wall. In the chest cavity no lungs could be demonstrated, no heart was visible, but some tissue was run through, which proved to be cardiac in origin. No spleen, liver or pancreas were found. The intestines were rudimentary. The striking feature was the extraordinary development of the entire genito-urinary apparatus. The kidneys were large, the ureters patent, the testicles in the vicinity of the kidneys. The bladder and urethra were dissected out intact. The vertebral column stopped above at the dorsal region; section of the cord showed nothing abnormal on macroscopic inspection.

Sections were cut of pieces removed from the abdominal cavity, but no organs could be definitely determined, the probability being that the tissue was in the early embryologic form and so not recognizable.

Journal of Kansas Medical Society, Kansas City

August

35 Examination of the Insane. T. C. Biddle, Topeka.
36 Diagnosis and Treatment of Paresis. L. R. Sellers, Osawatomie.
37 Maternal Nursing. J. T. Scott, St. John.
38 Gastric Ulcer. C. A. Meyer, Wichita.
39 Appendicitis from a Practical Standpoint. W. F. Coon, Caney.
40 Syphilis as Seen and Treated by the General Practitioner. G. A. Blasdell, Garnett.

New York Medical Journal

August 19

41 Modern Vitalism. C. E. Woodruff, Cebu, P. I.
42 National Insurance Against Sickness and Invalidity. G. P. Forrester, Darmstadt, Germany.
43 The Regressive Psychosis of Alcoholism. A. D. Bush, Wakefield, Mass.
44 Arteriosclerosis; Its Treatment. B. Robinson, New York.
45 The Pathology and Surgery of Renal Infections. I. Collica, New York.
46 Secondary Tumors of the Heart. H. L. Peters and L. S. Milne, New York.
47 *Strange Case of Anaphylaxis. B. Kaufman, Marysville, Cal.

47. **Anaphylaxis.**—The author was the patient in this case. While treating a virulent case of diphtheria in May, he took 500 units of diphtheria antitoxin. Beyond a slight urticaria, localized at the point of injection, there was no result. In December of the same year, he had three cases of diphtheria in the same family. While injecting one of the patients, a young boy, 5 years old, he struggled and the needle escaping from the skin of the lad, penetrated Kaufman's left thumb. He went to a drug store and injected himself with 1,000 units of diphtheria antitoxin. Inside of fifteen minutes the whole left arm was swelling until in a few hours it was about three times the normal size. There was intense pain in the member, with generalized aching, more or less nausea, and intense urticaria. There was no reaction at the site of injection suggesting infection, and, indeed, strict aseptic technic had been observed. The swelling gradually increased so that the fingers could not be closed. A blood count at that time showed 7,000 white cells with nothing abnormal, no rise of temperature and no symptoms of infection. He was given atropin sulphate, 1/150 grain, every four hours, until its full physiologic effect was apparent, ordered to bed and put on a restricted diet. The only comfort obtainable was by holding the arm in a vertical position. After four more days the swelling gradually subsided and has left no obvious effect.

Ohio State Medical Journal, Columbus

August 15

48 Care and Observation of Pregnant Women. C. M. Green, Boston.
49 *Choice of Method of Delivery in Difficult Labors. A. J. Skeel, Cleveland.
50 Diagnosis and Surgical Management of Perforation in Enteric Fever. S. D. Foster, Toledo.
51 Suggestions for Improving Public Health Service. C. O. Probst, Columbus.
52 Latest Advances in Our Knowledge of Syphilis. A. Ravogli, Cincinnati.
53 Cervical Glandular Infection from Diseases of the Throat. W. W. Pennell, Mt. Vernon.
54 Tuberculosis of the Nose with Report of Two Cases. W. Chamberlin, Cleveland.
55 Practical Points in Treatment of Nephritis. M. H. Fischer, Cincinnati.

49. Abstracted in THE JOURNAL, May 27, 1911, p. 1600.

Medical Record, New York

August 19

56 *Means of Controlling the [illegible])perable Neoplasms of the Bladder; [illegible] Trypsin and Hodenpyl Serum Therap [illegible] York.
57 *Paralysis of the Upper Extremity Due to Nerve Injuries. N. Jacobson, Syracuse, N. Y.
58 Recollections of Cholera Epidemics in Russia. G. A. Friedman, New York.
59 *Chemical and Biological Aids in Early Diagnosis of Gastric Cancer. A. E. Austin, Boston.
60 *Some Experiences with Russo's Typhoid Test. F. W. Rolph and W. H. Nelson, Toronto, Ont.
61 Is Alcoholism a Disease? F. H. Barnes, Stamford, Conn.
62 Perirectal Abscess. C. J. Drueck, Chicago.
63 Adenoids in School Children. P. R. Wood, Marshalltown, Ia.

56. ***Control of Hemorrhage from Inoperable Neoplasms of Bladder.***—Bangs states that one can relieve the hemorrhage from tumors of the bladder, which are a cause of great apprehension to the patient, by the use of a solution of creolin injected into the bladder. Creolin is an antiseptic with hemostatic properties. The author gives the histories of four cases in which it was used with benefit. A 1 per cent. solution is found to be efficient for this purpose. It relieves irritability of the bladder at the same time that it reduces the loss of blood, and in some cases it reduces the size of the tumor. Although there is no permanent cure to be hoped for by the use of the creolin treatment, still the life of the patient is made more comfortable and often prolonged considerably.

57. **Paralysis of Upper Extremity.**—Jacobson presents the histories of several cases of nerve injuries of the upper extremity with remarks on the diagnosis and treatment. The most frequent cause of partial paralysis of the upper extremity is injury of the musculospiral nerve; this occurs especially in fractures of the humerus, the nerve being torn at the time of the accident, or becoming compressed or adherent to the callus in the process of repair. The nerve can also be injured at a lower point, in the lower third of the arm in fractures. The injury is not always recognized at the time of the fracture, but appears when the splints are removed, with the characteristic wrist-drop and inability to extend the fingers. In two of the cases presented the nerve was adherent to the callus and separation of the nerve from the cicatrix brought about entire recovery. When there are visible changes in the nerve as a result of injury, recovery is slow. A case of fracture of the neck of the scapula with displacement of the head of the bone and adhesions to the brachial plexus caused complete paralysis of sensation and motion. No apparent injury of the nerve occurred, and a few days after operation motion began to return and recovery ensued. When there is complete division of the nerve trunk we have a different condition entirely. In such a case after uniting the nerve-ends six months after the injury good results were obtained; sensation was completely restored, and many muscular movements have returned. If a nerve is reunited soon after injury the immediate results are not better than after remote operation. If suppuration has occurred in the wound with granulation one will not get restoration of function without operation.

59. Early Diagnosis of Gastric Cancer.—Austin states that when patients are operated on before there is extensive stasis it is found that free hydrochloric acid is present in many cases. Positive hemolysis was found in twenty-two out of twenty-six cases of gastric cancer, while it was present but once in sixty non-carcinomatous cases of gastric trouble. When pepsin is found in marked amounts in the urine and there is little or none in gastric contents this points to gastric cancer. The presence of tryptophan in gastric contents is an indication of gastric cancer. The bromin test of stomach contents will give a violet color in the presence of tryptophan. In a series of cases tested by the author this test was negative in twenty cases out of twenty-two, and one of these showed a palpable tumor. The tryptophan test is considered by the author the most available test for cancer that can be used in a clinic.

60. Russo's Typhoid Test.—Russo's test for typhoid is performed as follows: To 4 or 5 c.c. of the patient's urine add 4 drops of a 0.1 per cent. aqueous solution of methylene blue; mix well and examine against the light; a mint or emerald-green coloration is positive, whereas any bluish tinge renders the test *negative*. Russo reported the reaction as being unaffected by boiling or by the ingestion of such drugs as calomel, quinin, salol or caffein, and also pointed out that the gradual resumption of the bluish tinge, as the patient advanced in the disease, was a valuable and favorable prognostic sign. During the past year Rolph and Nelson have been employing this test, as a routine proceeding, on most of the cases entering the Toronto General Hospital, and vouch as to its efficacy as a diagnostic aid in typhoid if applied early enough in the disease. Of fifteen patients examined, thirteen gave a positive Russo, eight of these gave a negative Diazo and seven a negative Widal. Two reacted negatively to all three tests. One of these patients furnished a positive blood-culture and had typical symptoms. The other was an unusual case.

There is one important fallibility of the reaction, which at first bothered the authors a great deal, until one of them discovered the cause, viz., that urines containing bilirubin will give a reaction which differs so slightly from the typical green, that they cannot be used in employing the test. Bile should be tested for, and in the event of its presence, the urine should be discarded. The earlier in the disease the more likely and the more typical the reaction. This is very important, as it differs, in this respect, from other laboratory tests, except blood-culture. The slightest tinge of blue must call for a negative interpretation, though experience will often enable one to distinguish the returning blue tint of a convalescent typhoid patient, from that of a normal or nontyphoid urine. The reason of the mint or emerald-green color is doubtful, but it is probably a reduction test, depending on the presence of unknown bodies in the urine. The authors did not find the gradually returning bluish tinge of much assistance in prognosis, as so many of the dangers of typhoid, are, as it were, accidental, and not directly dependent on the severity of the infection.

Journal of Indiana State Medical Association, Fort Wayne

August 15

64 Acute Anterior Poliomyelitis, with Report of Case. C. M. Kennedy, Camden.
65 Exstrophy of the Bladder. B. Van Sweringen, Fort Wayne.
66 Doctor in Politics. W. H. Stemm, North Vernon.
67 New York Summer Campaign Against Infant Mortality. H. K. Moderwell, New York.
68 Improvements at the Bacteriologic Laboratory of the State Board of Health. J. P. Simonds, Indianapolis.
69 Study of Diseases of Children. G. W. Finley, Brazil.

Northwest Medicine, Seattle

August

70 Child Surgery with Special Reference to Some of Its Difficult Problems. E. A. Rich, Portland, Ore.
71 Federal Meat Inspection. J. C. Exline, Walla Walla, Wash.
72 Courage on Part of General Practitioner to Depart from Fixed Rules in Medicine and Surgery. J. B. McNerthney, Tacoma, Wash.
73 Importance of Exact Methods of Diagnosis in Pathologic Conditions of the Kidney and Bladder. G. S. Whiteside, Portland, Ore.
74 Practical Treatment of Acute Middle-Ear and Mastoid Disease. R. A. Fenton, Portland, Ore.
75 *Treatment of Hemorrhoids. J. E. Else, Pullman, Wash.
76 Sarcoma of the Chorioid. R. L. Nourse, Boise, Idaho.

75. Treatment of Hemorrhoids.—After the usual preparation, Else seizes the center of the posterior quadrant at its apex with forceps and makes an incision from ½ inch above its base to the mucocutaneous line. This incision is made eliptical at the summit of the hemorrhoid, in order that the edges of the mucous membrane may fall together after the dissection. The mucous membrane on one side is now seized with an artery forceps at about the center of the incision and, by producing slight traction on the forceps, with the handle of the scalpel the mucous membrane is freed from the hemorrhoidal mass for about one-eighth of the circumference of the rectum. The same is now done on the opposite side, after which the hemorrhoid-bearing area is dissected from the muscularis, ligated and removed. After all has been removed that can be reached through this incision the mucous membrane is closed with a continuous suture of chromic catgut No. 1, extending into the muscularis, in order to obliterate as much as possible of the space between the two coats. The lateral quadrant having the largest hemorrhoidal mass is now attacked in the same manner, then the opposite side and the anterior quadrant last. Often three longitudinal incisions are found sufficient.

After the operation is completed a simple dressing is placed over the rectum and retained with a T-binder. Else never packs the rectum. On the evening of the second day 2 grains of calomel are given in divided doses and the next morning 1 dram of magnesium sulphate every hour until the bowels move. The movement is preceded with an enema of olive oil. After this a semisolid movement is obtained daily. Else has done this operation several times and has yet to see an imperfect result.

Iowa Medical Journal, Des Moines

August

77 Acute Anterior Poliomyelitis, with Report of Cases Illustrating its Occasional Clinical Resemblance to Meningitis. P. Bassoe, Chicago.
78 Infantile Paralysis or Anterior Poliomyelitis. C. E. Ruth, Ponce, Puerto Rico.
79 Progress in Medicine. N. C. Schiltz, Des Moines.
80 Status Lymphaticus. J. Maynard, Adair.
81 Tuberculins and Their Indications. S. R. Klein, New York.
82 Operative Treatment of Varicocele of the Spermatic Cord. A. P. Heineck, Chicago.
83 Clinical Briefs in Medicine. W. L. Bierring and J. H. Peck, Des Moines.

Bulletin of Lying-In Hospital of City of New York

March

84 *Case of Hodgkin's Disease Complicated by Pregnancy. A. B. Davis, New York.
85 Plea for More Practical Laboratory Research. F. E. Sondern, New York.
86 Trichinosis Developing During the Puerperium. Ethmoiditis in a Newborn Infant. W. A. Morgan, New York.
87 Hospital Publications as Factors in Medical Journalism. G. W. Kosmak, New York.
88 *Puerperal Infection, Its Clinical Varieties and Treatment. J. A. Harrar, New York.
89 *Multiple Cesarean Section, with Results in Thirty-Nine Cases Done at New York Lying-In Hospital. R. McPherson, New York.

84. Hodgkin's Disease Complicated by Pregnancy.—In December, 1909, the patient, aged 32, v para, began to complain of a burning pain in the right side of the abdomen, which disappeared under treatment for the time being. It returned during the month of February, and continued to the time of admission. This pain was described as dull and aching, extending across the abdomen and into both shoulders, being accompanied at the same time by a feeling of constriction. The pain was always more severe on lying down, so that the patient was compelled to sleep in a Morris chair, which, however, seemed to give relief. About seven weeks before admission to the hospital the patient went to sleep in this chair feeling rather weak but otherwise well and having been able to walk up to this time without any difficulty. On the following morning the patient was unable to get up out of her chair and was never able to walk since that time. At first she could move her thighs and legs but this ability gradually disappeared. The lower extremities were alone affected in this paralysis, the onset of which was unaccompanied by chill, fever or other constitutional disturbance, aside from an indefinite paresthesia. After the patient's admission to the hospital she believed that she was able to feel her feet move and also whenever she "felt life," she said that the legs "were jerked." Involuntary defecation and urination were also present. The paralysis seems to have always been of the flaccid order.

The neck did not show any rigidity, but behind the angle of the jaw and extending beneath the right sterno-mastoid muscle there was a small, soft, lobulated, elastic tumor. This was freely movable and did not seem to be attached to the muscles of the skin. There was no infiltration of the surrounding cellular tissues. Behind the right sterno-mastoid muscle the posterior chain of glands was somewhat enlarged but not tender. The lungs were normal. The heart action was rapid and irregular and the area of cardiac dulness extended from the right border of the sternum to a point about 3½ inches to the left of the midsternal line. There was present a short, faint, systolic murmur, loudest to the left of the sternum in the sixth intercostal space. This was probably hemic in character and otherwise the heart sounds were regular and normal in quality. The abdomen was enlarged by an eight-months' pregnancy with the fetus in R. O. A. position. A diffuse acne was distributed over the back of the thorax and a bed-sore as large as the palm of the hand was present over the sacrum.

The legs were both very edematous, and a flaccid paralysis was present extending from the hips to the feet. There was an absolute anesthesia of the skin of both legs including pressure, heat, cold and pain. This area extended upward over the abdomen to a distinctly marked horizontal line 20 cm. above the symphysis and over the back to about the level of the iliac crests. The rest of the body was normal as regards sensation. The knee-jerks and the knee-clonus were absent. The Babinsky and plantar reflexes were doubtful. Occasionally on pricking the skin of the legs or feet, indefinite muscular twitchings occurred and with each twitch pain in the right side of the abdomen was complained of. May 27, 1910, the patient delivered herself in bed without any previous evidences of oncoming labor. The blood examination showed red cells, 3,880,000; leukocytes, 11,600; hemoglobin, 78 per cent.; neutrophils were increased to 88 per cent., small lymphocytes reduced to 10 per cent.; large lymphocytes to 1.5 per cent.; eosinophils, 0.2 to 1.5 per cent.

The Crile hemolysis test for lymphosarcoma proved negative. Von Pirquet's test was then employed twice and proved negative each time. Examination of the sputum was negative as regards the finding of tubercle bacilli. Finally a Wassermann reaction was done, likewise with negative results. It was then decided to remove a small portion of the enlarged gland under cocain for purposes of diagnosis. Sections of this tissue warranted a diagnosis of Hodgkin's disease. The cause of death was toxemia due to miliary abscesses of the kidney, cystitis and absorption from atrophic ulcers. The abscesses and ulcers were caused by paralysis due to pressure on the spinal cord by a Hodgkin's granuloma affecting the lymph-nodes situated in the posterior part of the dorsal canal. It is generally conceded that Hodgkin's disease is not accompanied by the formation of metastatic deposits in the manner which usually results in the presence of malignant new growths. The enlargements take place only in previously existing lymph-nodes and may occur in any part of the body. The condition noted in this case, in which paraplegia was caused by the involvement of the lymphatic structure in the spinal canal, is very unusual and it seems that only one other case of Hodgkin's disease can be found on record in which this complication took place, that single instance having been reported by Osler.

88. **Puerperal Infection.**—The treatment followed in the New York Lying-In Hospital when the temperature rises after labor is outlined by Harrar. Breast, lung and throat conditions, pyelitis, malaria and typhoid are ruled out. A cathartic is given and attention is paid to emptying the bladder. A full condition of either bladder or rectum interferes with proper contraction and drainage of the uterus. When there has been a recent perineorrhapy the wound is inspected and stitches removed if there is much tenderness or edema. The abdomen is examined, noting height of the fundus, areas of tenderness or resistance and whether there is tympanites or rigidity present. If there is a high rise of the pulse-rate accompanying the temperature, cultures are taken from the cervix and uterus whether the lochia is foul or not. At this procedure inspection can be made of the vagina and cervix, especially noting if the latter is distinctly patulous and gaping. Such a condition of the cervix points to retained portions of membrane or placenta. If the pulse rise is slight in comparison with the temperature rise no vaginal inspection or cultures are made. After this preliminary information has been obtained, the bed is elevated sharply at the head and an ice-bag induces a better tone in the uterus, possibly somewhat inhibits bacterial growth, and certainly gives great relief to the patient if there is any pain. If the temperature remains high or recurs, and the gonococcus or the streptococcus be reported, the former treatment is simply continued. If the colon bacillus is found or "no growth" reported and the lochia is foul, give a gentle intrauterine douche. At this time with the continuance of temperature and in the absence of the gonococcus or streptococcus it is permissible to make a gentle digital exploration of the interior of the uterus and remove any fragments of secundines that are present or release possibly retained lochia. This is in no sense of the word a curettage. Harrar says: Never curet, except in incomplete abortions at or before the third month. The further course of the treatment depends on the development of the case and already has been suggested in the description of the various conditions that may arise in bacterial infection of puerperal women.

89. **Multiple Cesarean Section.**—Thirty cases were done for the second time, seven for the third time, and one each for the fourth and fifth times. In eighteen cases there were no adhesions present at all, in eleven very few, in several there were many, in one the uterus was adherent to the abdominal wall and in two cases no note was made. The uterine scar of former operations was not seen in nine cases, was normal (not thinner than the rest of the uterus), in twenty-five cases, was very thin in four cases, and was ruptured in one case, the latter being one in which many adhesions were noted. In the series there were three deaths of mothers; one from anesthesia, occurring on the table before the uterus was opened, the second from sepsis on the third day and the third from pneumonia on the fifth day. One child died of hemophilia on the sixth day. Thus it is observed that the repeated operation offers very little danger over the primary and that in cases in which some obstruction to labor exists, such, for example, as contracted pelves, there is no logical reason why the patient should not become the mother of a normal family with periods of quiescence and comfort between pregnancies, making the operation of sterilization unnecessary and, in McPherson's opinion, as a routine measure distinctly unjustifiable.

Journal of Iowa State Medical Society, Clinton

August

90 Preventive Medicine. G. E. Decker, Davenport.
91 Tobacco, Its Effects. S. Bailey, Mt. Ayr.
92 Care of Children in Private Institutions. M. Bannister, Ottumwa.
93 Classification of Nutritional Disturbances in Infants; Treatment. C. G. Grulee, Chicago.

Journal of Biological Chemistry, Baltimore

August

94 Instability of Glucose at the Temperature and Alkalinity of the Body. L. J. Henderson, Boston.
95 Method for Study of Proteolytic Ferments. P. A. Kober, New York.
96 Analysis of Proteins by Determination of the Chemical Groups Characteristic of the Different Amino-Acids. D. D. Van Slyke, New York.
97 Partial Hydrolysis of Proteins. P. A. Levene, D. D. Van Slyke and F. J. Birchard, New York.
98 Oxidation of the Amino-Acids: Alanine and Tyrosine. W. Denis.
99 Phosphorus Assimilation of Aspergillus Niger. A. W. Dox.
100 Application of the Optical Method to a Study of Enzymatic Decomposition of Nucleic Acids. S. Amberg and W. Jones, Baltimore.
101 Melanin. Pigmentation of the Adult Periodical Cicada (*Tibicen Septendecim L.*). R. A. Gortner.

Annals of Otology, Rhinology and Laryngology, St. Louis

June

102 Lateral Wall of the Cavum Nasi in Man, with Especial Reference to the Various Developmental Stages. J. P. Schaeffer, Ithaca.
103 Accessory Thyroid Tumors of the Tongue. H. E. Smyth, Bridgeport, Conn.
104 Three Cases of Mental [illegible] with Suppurative Otitis Media. [illegible]
105 Subdural Drainage in [illegible] Brain Abscess. Reports of Two Cases with Autopsies. E. W. Day, Pittsburgh.
106 Radical Mastoid Operation. F. Allport, Chicago.
107 Four Cases of Foreign Body in the Esophagus Removed with Aid of the Esophagoscope. S. Yankauer, New York.
108 Two Cases of Foreign Body in the Bronchus; Case of Tumor in the Lower Trachea; Removal by Upper Bronchoscopy. S. Yankauer, New York.
109 A Speculum for the Direct Examination and Treatment of the Eustachian Tube. S. Yankauer, New York.
110 Mastoiditis Without Apparent Involvement of the Middle Ear. C. E. Perkins, New York.
111 Case of Spindle-Celled Sarcoma of the Mastoid. O. Glogau, New York.
112 Mastoiditis Followed by Cerebral Symptoms: Relieved by Decompression Operation. C. E. Perkins, New York.
113 Two Cases of Cerebellar Abscess with Thrombosis of the Lateral Sinus; Operation; Recovery. D. S. Dougherty, New York.
114 Possible Effect on the Auditory Labyrinth of the Ehrlich-Hata Remedy in the Treatment of Syphilis. G. Alexander, Vienna, Austria.
115 *Preliminary Report of Some Two Years' Experience in Modified Blood-Clot Surgery of the Mastoid Region, with Presentation of Cases* H. B. Blackwell, New York.
116 Cases of Chronic Suppurative Otitis in Which Ossiculectomy is Indicated. O. A. M. McKimmie, Washington.
117 Three Cases of Removal of Coins from Esophagus of Infants by a Simple Procedure. H. L. Myers, Norfolk.
118 Osteofibroma Occupying the Tonsillar Fossa (Probably of Styloid Process). A. L. Kelsey, Los Angeles.

Therapeutic Gazette, Detroit

August

119 Effect of Sodium Cacodylate and Atoxyl on Experimental Infection with Staphylococcus Aureus. H. Newmayer, Philadelphia.
120 Present Status of Abdominal Delivery in Obstetric Surgery. C. Foulkrod, Philadelphia.
121 Total Paralysis of the Brachial Plexus Due to Traumatism Causing Evulsion of the Component Roots of the Plexus. C. K. Mills, Philadelphia.
122 Subacromial Bursitis. A. R. Allen, Carlisle, Pa.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

August 12

1 Psychoneuroses. E. D. Macnamara.
2 Present Position of Radium Emanation-Therapy in Germany. W. Engelmann.
3 Institutional Hydropathic Treatment as Compared with Spa Treatment for Certain Types of Invalids. T. D. Luke.
4 *Case of Complete Gastrectomy. B. G. A. Moynihan.
5 After-Care. H W. McConnel.
6 Roentgenotherapy for Excessive Local Perspiration. A. H. Pirie
7 *New Form of Trochiscus Sir J. Sawyer.

4. **Complete Gastrectomy.**—In December, 1907, Moynihan recorded a case of complete gastrectomy. The patient was a man, aged 43, who had suffered for two years from gradually increasing distress after food. At the operation a small, greatly thickened stomach was found, and as no healthy part of its wall could be discerned the whole organ was removed. The cut end of the esophagus was stitched to the side of a loop of jejunum, brought upwards through an opening in the transverse mesocolon. The pathologic report stated that the stomach was involved in a neoplastic change of a particular type which has its analogue in the so-called atrophic scirrhus met with in the mammary gland. The patient made a good recovery from the operation.

During the three years and eight months that he lived after the operation he was under constant observation. He was perfectly well up to the early part of the year 1910, when he began to show the evidences of a profound anemia. He was strikingly pale and breathless, and he lost weight. Under treatment, however, he improved, and in May, 1910, his color had returned and he was able to ride and drive and attend to matters on the farm. In August, 1910, he began to fail again; he became easily tired, though he still tried to carry out the greater part of his work. His appetite remained good and he had no indigestion. In October, the signs of anemia reappeared, he grew much weaker, and had to cease work. He began again to lose weight, his appetite vanished, and he vomited occasionally. There were no abnormal signs of any kind in the chest or abdomen throughout the illness. Soon after Christmas, 1910, he had to take to his bed, and he died on the last day of January, 1911. He had gained 38 pounds after the operation and he held the gain for nearly three years. His appetite was good, he experienced the sensation of hunger, and he was able to eat the ordinary foods; but he had to take a rather longer time over a meal than in the days preceding his original illness. The chief points of interest in the case are: (1) Complete absence of any recurrence or dissemination; (2) the very profound anemia; and (3) absence of any striking jejunal dilatation at or near the site of anastomosis.

7. **New Form of Trochiscus.**—Sawyer suggests the assimilation into medical practice of the excellent pharmacologic basis afforded us by the popular modern sweetmeat known as the "chocolate cream." The following prescription illustrates its use:

℞	Gm. or c.c.		
Mentholis	006		gr.1/10
Olei eucalypti	003	or	♏ 1/5
Pastæ lactis			
Pastæ nuclei cacao, āā q. s.			

Fiat trochiscus, sec. artem.

Or the pasta lactis in each trochiscus may be medicated by the addition of 1 or 2 grains of borax, or ½ grain of sulphate of zinc, or 1 minim of oil of turpentine, or of oil of cajuput, or ½ minim of oil of anise. Sawyer suggests that the trochisci might be called cremules and, Latinized, cremulæ. When quickness of preparation is to be wished for, unmedicated ones can be medicated readily by remedies which are liquid in their form, by injecting a minim or so of the medicament into the center of a "simple" cremule, by the aid of a hypodermic syringe.

British Medical Journal, London

August 12

8 The Need for Unification in the Public Medical Services. R. A. Lyster.
9 Disease Carriers. D. S. Davies.
10 Medical Examination in Relation to Claims for Damages or Compensation. R. J. Collie.
11 Industrial Diseases of Birmingham. R. W. Edginton.

Journal of Tropical Medicine and Hygiene, London

August

12 *Mode of Transmission of Leprosy. T. L. Sandes.
13 Infant Feeding in the Tropics. W. E. Deeks.

12. **Transmission of Leprosy.**—Considering the enormous numbers of lepra bacilli in the infiltrated or ulcerated skin and nasal mucosa of an active "tubercular" leper and the ingestion of bacilli by certain insects, Sandes suggests that direct contact and transmission by flies, fleas, mosquitoes or other insects are possible modes of spread of the disease; but such infection, if it ever does take place, is accidental and exceptional. Having found acid-fast bacilli answering, as far as our imperfect tests permit, to the characteristics of lepra bacilli in a considerable proportion (about 30 per cent. of specimens of *Acanthia lectularia* up to sixteen days after feeding on lepers) there is reason to believe that this species of insect constitutes a very important agent in the spreading of leprosy.

H. M., aged at the time, 11 years (whose father had been removed as a leper to the asylum some time previously and whom the son used frequently to visit), observed for the first time in the year 1901 a small, red papule under his chin. It enlarged slowly, becoming in area, to use his own simile, about the size of a 6-penny piece. It was indurated and resistant to treatment. It remained thus, slightly raised, hard, and of a reddish hue, for two complete years before any further symptoms appeared. In 1903, he noticed for the first time a bluish puffiness of his cheeks, later slight thickening of his eyebrows, and a diffuse but moderate swelling of the entire countenance. Toward the end of the year tubercles began to appear on his face. Thereafter tubercles continued to appear at irregular intervals on his face. The glands of his neck became involved. From this time onward the tubercles and other typical signs were of universal distribution and showed a diffuse systematic infection. Sandes believes that the initial pimple, and later tubercle, on the chin would appear to have been the primary lesion, probably caused by the bite of a leprosy-infected bug.

Journal of Obsterics and Gynecology of the British Empire, London

July

14 Pelvic Cysts Due to Spinal Meningocele. J. S. Fairbairn.
15 *Retraction Ring as Cause of Obstruction in Labor. R. Jardine.
16 Dysmenorrhea; Hematometra of One Horn of Uterus Bicornis. E. Maclean.
17 Secondary Abdominal Pregnancy—Fourth Month. G. Fitz-Gibbon.

15. **Retraction Ring Cause of Obstruction in Labor.**—In an obstructed labor, when the retraction ring can be palpated through the abdominal wall, Jardine regards this as a danger signal which must not be disregarded. Prompt and proper treatment must be adopted, or rupture of the uterus will soon occur. If improper treatment is adopted, the rupture may be caused by it. In ordinary cases of obstructed labor the ring is not the primary cause of the obstrucction, but rather the result. Occasionally, however, cases occur in which the ring is the cause of obstruction. In some of these cases the ring actually forms in front of the presenting part, while in others, it is behind the presenting part, which may be either the head or the breech. In obstructed labors the ring is due to excessive retraction of the main body of the uterus and thinning out of the lower uterine segment. In such cases it naturally follows that there must be a very palpable ledge where the thinned out lower uterine segment becomes continuous with the retracted and thickened main portion of the uterus. By an internal examination, the ring can be recognized before it can be palpated through the abdomen. There is no apparent obstruction from a contracted pelvis, tumor or an abnormal presentation, and yet the labor is delayed, although the uterine contractions are strong and frequent. The uterus may be in a tetanic condition without any relaxation between the pains. On palpating the abdomen, one finds that the presenting part is above the brim of the pelvis, but may not be able to feel the retraction ring. On making a vaginal examination the os is dilated, and the lower uterine segment opened up, but some 3 inches or so above the os, there will be a distinct ledge running round a portion of the whole of the uterine cavity in front of the presenting part. During a pain, this ledge will not relax, but it will contract, and prevent any advance of the presenting part. The membranes may or may not be ruptured. If they are intact, they will protrude into the vagina, and they may even be seen at the vulva. The condition is an exceedingly dangerous one for both mother and child. If it is recognized in time, both may be saved, but in most of the recorded cases, a definite diagnosis was only made when exhaustion had set in, and there was little chance of saving either mother or child. If the condition is recognized in time, and proper treatment is adopted, both mother and child should be saved, in the great majority of the cases.

As for treatment, give the patient a full dose of morphin, and when she is fully under the influence of the opiate, if the ring has not relaxed, anesthetize her deeply, dilate the ring manually and deliver with forceps. If one cannot dilate the ring manually, perform Cesarean section, if the child is still alive. Incision of the ring has been advised, but it will almost inevitably end in rupture of the uterus. If the child is dead, a craniotomy should be done, and delivery by means of an instrument which will thoroughly crush the head. If the shoulders obstruct, cut the clavicles, to allow the shoulder girdle to collapse. Hydrostatic bags have been advised to dilate the ring, but they are useless, as one cannot introduce them high enough to bear on the ring. When the ring is above the presenting part, in the majority of cases, there will be another obstruction, such as a contracted pelvis, a tumor, or a transverse presentation. These cases should be dealt with according to the rules laid down for the treatment of such obstructions.

Glasgow Medical Journal

August

18 Treatment of Inoperable Carcinoma of the Female Mamma. Sir G. T. Beatson.
19 Case of Peripheral Neuritis of Obscure Origin, with Secondary Changes in the Spinal Cord. A. W. Harrington and J. H. Teacher.
20 Review of the Public Health Administration in Glasgow. H. A. M'Lean.

Indian Medical Gazette, Calcutta

July

21 *Treatment of Leprosy by Use of a Vaccine Prepared from Cultivations of the Leprosy Streptothrix. E. R. Rost.
22 *Researches on Endemic Goiter. R. McCarrison.
23 Operation Theater with Accommodation for Twenty Students. W. G. King.
24 Division of the Suspensory Ligament of the Lens, as a Preliminary to Intra-Capsular Extraction of Cataract. V. Nesfield.
25 Averages of Weight and Chest Measurements of 705 Madras Coolies. B. Nicol.
26 Hydrocele. T. H. Foulkes.
27 An Anopheline Allied to Myzomyia Listoni. U. N. Brahmachari.

21. **Vaccine Treatment of Leprosy.**—Five of the twelve patients treated by Rost with this vaccine are now practically cured as far as clinical observation goes, while the remaining seven are all remarkably improved. The vaccine was injected weekly, and temperature records taken almost always showed a rise of temperature varying from 100 to 105 F. Rost has been using all along 1 c.c. of a 1 in 400 dilution of dried culture or the equivalent thereof, and 1 c.c. of a sterilized six-weeks' broth culture. He has found it to be advisable to obtain only slight reactions in nodular cases, whereas in anesthetic cases the higher the reaction, the better the result. The reason for this probably lies in the fact that in the anesthetic cases the bacilli being situated in the nerves, there is not the danger of metastasis that there is in the large masses of the nodular variety. The improvement after vaccine injection may come on gradually some months after injection. With the idea of trying to ascertain the interval at which injections should be given, opsonic indices were taken of treated cases, but the time at his disposal in this laborious research precluded the possibility of arriving at any result which one might rely on, and he had to judge the period from clinical observation of the treated patients. It is also probable that the time at which the vaccine should be repeated varies according to the case.

22. **Endemic Goiter.**—McCarrison has been employing vaccines in the treatment of goiter with good results. A coliform organism grown from the feces of sufferers from the disease has usually been employed for the manufacture of the vaccine. He gives this vaccine in doses of from 150,000,000 to 300,000,000 at intervals of from seven to ten days, and has found that five or six inoculations is all that is required to cause a complete disappearance of the swelling. In some recent cases as few as two inoculations were sufficient. This treatment is popular with the people as it does not involve the taking of medicines two or three times a day, and apart from the slight discomfort at the site of inoculation for twelve hours or so, the patient is free to follow his usual avocations. A portion of the skin of the upper arm is painted with iodin tincture and the inoculation made without any further preliminary sterilization of the skin. An autogenous vaccine is on the whole more useful that a stock vaccine, but McGarrison found the latter to act admirably. He says he cannot as yet attribute any specific action to the organism from which the vaccine is prepared. But so far at least as goiter is concerned, the efficacy of a vaccine does not depend on the specific nature of the organism from which it is prepared. He has employed other vaccines and in some cases with surprising results. One patient was successfully treated with a staphylococcus vaccine. The result could hardly be better. The staphylococcus was taken from a diseased femur in a *non-goitrous* individual. Three inoculations of 250,000,000 caused the bone to heal and the discharging sinuses to close up, while it took five doses to bring about the change in the goitrous individual shown in the figures. *Staphylococcus albus* is certainly not the cause of goiter, yet a vaccine prepared from it can cure the disease.

Dublin Journal of Medical Science

August

28 Early Diagnosis of General Paralysis. W. H. L. MacCarthy.
29 Use of Atropin as a Preventive of Pulmonary Complications Following Administration of Ether as a General Anesthetic. E. A. W. Henley.
30 *Clinical Reports of the Rotunda Lying-In Hospital, Dublin, 1909-1910. E. H. Tweedy and R. J. Rowlette.

30. Clinical Reports of the Rotunda Lying-In Hospital.—One hundred and sixty-one abdominal sections were performed in the Rotunda Hospital and in twenty cases the abdomen was opened through the vagina. Sixteen of these were vaginal fixations. Fourteen abdominal myomectomies were performed. Several of these necessitated the almost complete division of the uterus, and the recovery in all cases was uneventful. Two of these patients, who had come to the hospital because of sterility, have since been successfully delivered. There were ten Wertheim operations with one death. Tweedy thinks this operation should be performed when practicable in all cases of uterine cancer, whether of the body or cervix. He operated for the cure of complete tears fourteen times, with uniform success after the first operation. There were also performed eighty-five trachelorrhaphies and amputations; fifty-six ventral and sixteen vaginal suspensions; thirty-five hysterectomies; forty-seven vaginal operations; seventy-two operations on the ovaries and tubes. Eleven hysterectomies were done for malignant disease—seven cases of epithelioma of cervix, two of adenocarcinoma of the body and one sarcoma of the body. Only one of these patients, aged 60, died—a case of epithelioma of the cervix in which a Wertheim operation was done. The cause of death was congestion of the lungs. The ages of the others ranged from 35 to 61. Only five of the 504 patients operated on died. The causes of death were sloughing of spleen after subphrenic abscess, abdominal cancer, general peritonitis, congestion of lungs and septicemia. One of the cases of adenocarcinoma of the uterus was of interest in that two ovarian cysts were present, in one of which were masses of the same nature as the tissue in the uterus. Sarcoma of the uterus is a comparatively rare condition. This is only the third specimen met in six years' practice at the Rotunda. The tumor was a large, soft, homogeneous mass, situated, as nearly all these tumors are, in the endometrium of the fundus. It had infiltrated the wall of the uterus, so that it was invading the peritoneum and forming adhesions with neighboring viscera. Microscopically, it consisted of irregular, large, round cells. One of the cases of ectopic pregnancy was of special interest in that it is the first recorded case in Ireland of true primary ovarian pregnancy. Of twenty-one cases of inflammation of the tubes examined, six were tuberculous. The proportion in six years has been fifty-three and nineteen. A point of some interest is the frequency with which cysts of the ovary are related to chronic salpingitis. In four of the cases this year small cysts of the ovary occurred, i. e., in about 33 per cent. of the cases of chronic salpingitis, non-tuberculous in origin. Twenty-five cystic conditions of the ovary were examined; fifteen of these specimens were ordinary multilocular, smooth-walled cysts, one was a simple papillary cyst, and three were malignant papillary cysts; three lutein cysts are in the number, and three dermoids. Two dermoids occurred in one patient. Another dermoid examined was in part malignant. In addition to the three cases of malignant papilloma and this case of malignant dermoid, two other cases of malignant disease of the ovary were encountered. As usual in primary cancer of the ovary, the disease was bilateral. No primary focus of disease elsewhere in the body could be discovered.

Annales de Médecine et Chirurgie Infantiles, Paris

July 1, XV, No. 13, pp. 401-432

31 Tracheobronchial Glandular Disease. (Adénopathie trachéo-bronchique.) H. Barbier.
32 *Diet for Dyspeptic Children. (Régime des grands enfants dyspeptiques.) H. Legrand.

32. Diet for Children Inclined to Dyspepsia.—Legrand's article is a detailed review of food adapted for school children of all ages with recipes for numerous dainty French dishes. He lays great stress on passing certain dishes through a very fine "silk" sieve, especially beans, peas and green vegetables to form a digestible purée. The butter or cream should not be added, he says, until just as the dish is served. Potato should never be allowed a dyspeptic except mashed or in a soufflé. Bread should be allowed only in small quantities to dyspeptic children, and only very well cooked or toasted. Not much raw fruit should be allowed; the preference should be given to stewed fruits or jellies not very much sweetened. The dyspeptic should never drink at the commencement of a meal and very little through the meal, but between meals skimmed milk and kefir may be allowed. A rest after eating, immaculate condition of the teeth and slow chewing are indispensable for dyspeptic children. He adds the yolks of eggs and butter to certain soft mashed vegetables just as they are served, thus increasing the palatability and nourishing value. He commends in particular frogs' legs and poached yolks alone as particularly digestible. Very little soup should be taken as it has small nutritive value while it dilates the stomach. He expatiates further on the importance of actually fresh eggs for dyspeptics; the more recently laid the more easily digested and the less likely to induce putrefaction in the intestines.

Journal de Chirurgie, Paris

June, VI, No. 6, pp. 617-740

33 *Primary Sarcomas of the Muscles—Myomectomy. (La myectomie large dans certains sarcomes primitifs musculaires.) P. Lecène and L. Mondor.

33. Primary Sarcoma of the Muscles.—Lecène and Mondor report a case each of sarcoma of the muscle of the thigh or leg, both patients apparently cured by extensive resection of the muscles into absolutely sound tissue regardless of possible functional trouble afterward. Twelve similar operations are on record. Only five of the total fourteen patients were women; one was a girl of 17, two about 22 and the others 40 and 58 years old. There has been no recurrence in any case during the three to eight years since the operation, but one patient has died of intercurrent heart disease. As is shown in an illustration, sarcomas in muscle tissue have something like a capsule around them, but it would be a grave mistake to restrict the operation to this; the muscle should be resected far beyond on all sides. The functional disturbances from the mutilation always proved surprisingly slight.

Lyon Chirurgical, Lyons

July, VI, No. 1, pp. 1-120

34 *Inflammatory Postoperative Gastric Tumor. F. Mouisset and X. Delore.
35 Operations on Cervical Sympathetic in Treatment of Exophthalmic Goiter. A. Chalier (Continued).
36 Gastro-Intestinal Neurofibromatosis. R. Leriche.
37 *Ultimate Results of Operative Treatment of Exophthalmic Goiter. (Les résultats éloignés des interventions thyroidiennes dans la maladie de Basedow.) H. Alamartine and E Perrin.

34. Inflammatory Tumor of the Stomach.—Mouisset and Delore report a case of duodenal ulcer in which gastro-enterostomy was followed by development of a large tumor in the epigastrium, hard and irregular, accompanied by anemia. Under medical measures the tumefaction subsided and the patient, a man of 39, has been in fairly good health during the year to date, although the primary trouble was suspicious of cancer and the primary deep tumor in the duodenum is still palpable.

37. Ultimate Results of Operative Treatment of Exophthalmic Goiter.—Alamartine and Perrin summarize 120 cases of exophthalmic goiter in which an operation was done over three years ago as reported by seven different surgeons. In eighty-five cases the cure was complete, that is, in 70.8 per cent., while there was marked improvement in twenty-seven other cases, that is, 22 per cent., and only 6.6 per cent. of the patients were not benefited. Even when the goiter persisted yet the conditions in regard to the circulation were so modified that the special symptoms subsided permanently.

Presse Medicale

July 22, No. 58

38 New Urethrotome. F. Legnen.
39 *Action of Salvarsan on Acoustic Nerve. J. David.

July 26

40 Infantile Scorbutus. A. Broca.
41 *Pneumonic and Bubonic Plague. A. Manaud.

July 29

42 *Cysts of Cerebellum. L. Chauvet and E. Velter.
43 Physiologic and Orthostatic Albuminuria. M. Springer.

44 *Rôle of Interosseous Membrane in Overriding of Fragments in Fracture of Bones of the Leg. P. Saissl.
45 Treatment of Infectious Ulcers of Cornea. A. Oliveres.

August 2

46 Action of Calcium Chlorid as a Diuretic in Nephritis. G. Vitry.
47 Technic of Blood Transfusion. S. Voronoff.

39. **Action of Salvarsan on the Acoustic Nerve.**—David reports one case in which a defect of hearing appeared after the administration of salvarsan for a secondary syphilis. The injection was subcutaneous, a dose of 0.45 gm. (7 grains) being given. The ear symptoms appeared seven weeks later. The author has been able to collect twenty-eight other cases in which the acoustic nerve has been attacked after the administration of salvarsan. The reaction of Herxheimer which has been invoked does not afford a satisfactory explanation, neither is there evidence of a syphilitic relapse in these cases. In David's case both the blood and cerebrospinal fluid were negative to the Wassermann reaction. David suggests that salvarsan has special affinity for the nervous system, due to some product of decomposition and that in cases in which the ear affection comes on late, a storage of arsenic has occurred, probably in the liver. The ear trouble is likely to occur after all methods of injection. Another case has been reported by Beck in which hearing was partially recovered by the use of pilocarpin.

41. **Epidemic Relations of Pneumonic and Bubonic Plague.**—Broca brings forward evidence to show that epidemics of pneumonic plague occur in winter and those of bubonic form are found in summer. Epidemic pneumonic plague does not appear to be known in warm climates. The explanation of these facts appears to lie in the fact that the bacilli of pneumonic plague are highly virulent and are spread by means of human contagion without the intervention of the rat, while in the summer time when the insect carriers of the disease are able to infect the rat population, inoculation on the skin producing buboes is the most likely mode of infection and the epidemics of summer and of warm countries exhibit the bubonic type. Consequently during the summer and in hot climates the prophylactic measure chiefly to be employed is the destruction of rats and their infesting parasites, human contagion playing an insignificant rôle, while in winter quarantine and isolation must receive greater attention.

42. **Cysts of the Cerebellum.**—Chauvet and Velter discuss the symptomatology of cysts of the cerebellum and note that at times such a cyst runs its course without characteristic symptoms, the only complaints being such as are common to brain tumors in general. They report such a case, with necropsy. The cyst had developed in a glioma. Histologic researches on the rest of the cerebellum are promised. The authors suggest that in this way the absence of focal symptoms may be explained.

44. **Rôle of the Interosseous Membrane in Overriding of Fragments in Fracture of the Bones of the Leg.**—Saissi recalls the well-known difficulty of reducing fractures of the bones of the leg in which the fragments override, a difficulty which has usually been attributed to the contraction of the muscles. He has shown by experiment on the cadaver that it is the tension of the interosseous membrane which causes the difficulty. He sawed the bones in two, separating the tibia below and the fibula above in one case, and both bones at a low point in the other. In the first case he found a shortening and deviation of the lower fragment slightly outward so that the upper part of the interosseous membrane was put on the stretch. This was so pronounced that attempts to reduce the displacement by traction in a vertical direction caused the membrane to tear in almost its entire length. In the second case, it was practically impossible to effect the reduction by traction downward. He concludes that the membrane alone is sufficient to hinder the reduction of the overriding fragments in this fracture. With the view of obviating this difficulty, he devised the following maneuver which he has carried out experimentally, but so far has had no opportunity to put into practice. Taking the lower fragment of the tibia as an axis, he makes strong external rotation with the view of relaxing the interosseous membrane, then makes traction downward to draw down the displaced fragment, after which an internal rotation brings the two parts of the tibia into apposition.

Progres Médical

August 5, No. 31

48 *Panoptosis. E. Ledoux and Tisserand.

48. **Panoptosis.**—Ledoux and Tisserand discuss the nature of the syndrome represented by a general ptosis of the abdominal organs, a condition of atony and relaxation of the tissues in general, and nervous reactions, both local and general, a form of neurasthenia. While the theoretic explanations of this condition are generally unsatisfactory, the authors believe they have established in the majority of their patients an insufficiency of the thyroid, and from further observations, they conclude that the essential metabolic change is a demineralization and chiefly, a decalcification of the tissues. Acting on this supposition they have administered lime salts with apparently marked success. They are so convinced of the value of this treatment that they attribute to it a therapeutic diagnostic importance. Every patient suspected of belonging to this class they claim will show distinct, rapid and considerable improvement under recalcification, if the diagnosis is correct.

Archiv für Gynaekologie, Berlin

XCIV, No. 2, pp. 265-597. Last indexed July 22, p. 345

49 Transmission of Antibodies from Mother to Child. W. Wegelius.
50 Cystic Sarcoma of Pelvic Peritoneum Four Years After Vaginal Hysterectomy for Sarcoma of Uterus. E. Goldenstein.
51 Fibrinogen in the Blood in Normal Pregnancy and Puerperium and in Eclampsia. E. Krösing.
52 Cholesterin Production in Myoma of Uterus. (Cystischen Degenerationen im Uterusmyom.) F. Cohn.
53 Fat Absorption in Ovarian Tissue. (Fettresorption im Gewebe des Eierstocks.) E. Strogaja.
54 Experimental Research on Origin of Amniotic Fluid. (Herkunft des Fruchtwassers.) J. Wohlgemuth and M. Massone.
55 Changes in the Blood During Pregnancy and Puerperium. H. A. Dietrich.
56 *Structure and Growth of Carcinoma of Uterus Body. (Bau., Wachstum und histologische Diagnose des Carcinoma corporis uteri; atypische Epithelwucherung der Uterusschleimhaut.) M. af Heurlin.
57 Structure of Ovarian Interstitial Gland. (Die interstitielle Eierstocksdrüse.) A. Schaeffer.
58 Infantilism and Premature Sexual Maturity. (Entwicklungsanomalien bei Infantilismus und bei vorzeitiger Geschlechtsreife.) B. Wolff.
59 Justification of Abdominal Removal of Gravid Uterus on Account of Pulmonary Tuberculosis. M. Henkel.

56. **Cancer of the Body of the Uterus.**—Heurlin's article is based on forty-six cases with anatomic examination. A single center for the growth was evident in all the various types of cancer. There was always a distinct line of delimitation between the growth and the sound mucosa, under the microscope; this fact might aid in differentiating malignant disease in some cases.

Archiv für klinische Chirurgie, Berlin

XCV, No. 3. pp. 495-741

60 *Technic of Rhizotomy for Tabetic Gastric Crises: Five Cases. (Foerster'sche Operation by gastrischen Krisen.) N. Guleke.
61 *Atrophy of Prostate. A. Barth.
62 Amputation for Obstruction of Tibialis Anticus Artery. (Verschluss der Arteria tibialis antica durch Endarteriitis bei freier Art. tib. post. Nervenquetschung.) B. Riedel.
63 *Ligation of Branches of Pulmonary Artery to Produce Contraction of Lung. (Unterbindung von Pulmonalarterienasten zur Erzeugung von Lungenschrumpfung.) E. D. Schumacher.
64 Advantages of General Anesthesia with Nitrous-Oxid and Oxygen. (Die Stickoxydul-Sauerstoff-Narkose.) M. Neu.
65 *Chronic Appendicitis and Atony of the Cecum. (Ueber chronisch anfallsfreie Appendicitis und ihre Beziehungen zur Typhlatonie, Coecum mobile und verwandten Zuständen.) P. Klemm.
66 Technic for Exclusion of the Pylorus. C. Girard.
67 *Chronic Appendicitis and Movable Cecum. (Typhlospasmus, Typhlatonie, Typhlektasie.) M. Wilms.
68 *Combined Methods of Treating Cancer. (Leistungsfähigkeit der chirurgischen und combinirten Behandlungsmethoden des Krebses.) R. Werner.
69 Fire-Arm Wounds of Vessels in War. (Die Gefässverletzungen im modernen Kriege und ihre Behandlung.) G. Lang.
70 *Experimental Research on Exophthalmic Goiter. H. Klose.
71 Appendix to Close Defect in Urethra. E. Streissler.
72 Isopral-Chloroform General Anesthesia. V. E. Mertens.
73 Plastic Operations on Esophagus. P. Frangenheim.
74 *"Sliding Hernia" of the Large Intestine. (Erfahrungen uber den Gleitbruch des Dickdarmes.) O. Sprengel.

60. **Rhizotomy.**—Guleke has performed this operation five times in the last year for gastric crises and the immediate

benefit was amazing, he declares. There were no further pains or vomiting and the patients were soon weaned from their morphin. But this gratifying phase did not last more than a month or so before symptoms developed indicating intestinal crises. In one patient they were so severe that Guleke resected further the tenth and eleventh roots. In the others the intestinal crises were minimal or bearable in comparison to the former condition of the patient. The outcome of the rhizotomy is thus liable to be somewhat disappointing, but this possibly may be due to the preexisting chronic morphin poisoning; if the operation could be done before the drug addiction the results might prove incomparably better. The main point now in differentiation is to learn to distinguish between vagus and sympathetic gastric crises, as only the latter are amenable to rhizotomy.

61. **Atrophy of the Prostate.**—Barth has operated in two cases of senile atrophy of the prostate causing severe symptoms, incontinence alternating with retention, the urine infected and catheterization often necessary. Both patients were restored to normal conditions in respect to their urinary apparatus after prostatectomy. The prostate was found shriveled to two small bunches scarcely as large as a bean, with numerous adhesions to the surrounding tissue. The excellent outcome, he remarks, shows that we no longer need feel so helpless in the presence of senile atrophy of the prostate; prostatectomy promises as good results here as with an enlarged prostate. The vesical sphincter is probably suffering from the same atrophy as the prostate, but all trouble from this source is obviated when the fibrous ring at the neck of the bladder is removed. It is possible that a Bottini operation on this fibrous ring might answer the purpose without further intervention. Fuller has reported three cases which seem to sustain this assumption. His patients were between the ages of 37 and 45 and all were cured by merely slitting, through a perineal incision, the hard ring at the neck of the bladder. There was a history of gonorrhea in two of these cases, as also in one of Barth's.

63. **Ligation of Branches of Pulmonary Artery to Act on Lung.**—Schumacher declares that the results of three years of experimental research on cats, dogs, goats and sheep and two clinical experiences have all demonstrated that by shutting off part of the lung from the circulation by ligating its arteries, intense proliferation of connective tissue follows and the part of the lung involved becomes a hard, tough mass. He shows in ten illustrations the best technic for the ligation, and discusses the outlook in its application in treatment of lesions of the lung. There is already, he insists, no doubt of the advantages it offers as a preliminary to resection of a tumor in the lung or a plastic operation on the thorax.

65. **Atony of the Cecum.**—Klemm refers to the cases generally classed as chronic appendicitis but in which the disturbances persist after appendectomy. He ascribes the trouble to some obstruction to the outflow of the secretion in the appenaix. The result is a slight inflammation, too mild to induce symptoms but serious enough to injure in turn the serosa of the cecum and impair the elasticity of the bowel wall, which stretches and atony follows as the feces stagnate here. The cecum may not be abnormally movable but its stretched walls sag; the best remedy is to take up a fold in the wall.

67. **Movable Cecum.**—Wilms ascribes the syndrome generally called chronic appendicitis to various anomalies affecting the cecum, abnormal length, size, adhesions, kinking, etc., most of which can be remedied by suturing the cecum in its proper place. In fifty-two cases in which he did this between 1907 and 1909, 75 per cent. of the patients were freed from all their disturbances, including their tendency to constipation. In six more recent cases the cecum was so abnormally large that he concluded to exclude it altogether, and the patients since have been free from all disturbances.

68. **Treatment of Cancer.**—Werner states that at the Heidelberg Cancer Institute the experiences with 2,000 cases of cancer have led to the adoption of the following outline of treatment. A radical operation is the rule whenever possible except for certain forms of sarcomas and epitheliomas which yield to radiotherapy or arsenic. The radical operation is not done with the knife but with the electric needle (de Forest's), especially when conditions interfere with excision far into sound tissue. Equally important is it to keep the wound open so that the Roentgen rays can be effectually applied. Fully 60 or 70 per cent. of all recurrences of cancer occur in the field of operation, and here is where improvement in technic is needed. Active immunization with the patient's own tumor material seems to offer encouraging prospects for warding off metastasis, but further experience is necessary to determine its harmlessness before it can be generally recommended. If a radical operation is not practicable at once, the cancer should be eventrated or exposed in some other way, so that it can be submitted to roentgenotherapy.

70. **Experimental Research on Exophthalmic Goiter.**—Klose injected dogs with the juice squeezed from goiter taken from patients with the exophthalmic form. The animals developed constantly a transient syndrome with the blood-findings of exophthalmic goiter, and exophthalmos in some instances. Comparison of the facts observed in the experiments and in the clinic seems to demonstrate that exophthalmic goiter is not due to excessive but to perverted thyroid functioning. The thyroid seems to be unable to collect and store the iodin in its normal form of iodothyrin but only in the form which might be called the Basedow form. In this form it exerts the same action as inorganic iodin injected into a vein. The theory thus elaborated harmonizes with and explains empirical observations and data.

74. **Experiences with "Slip Hernia."**—Sprengel defines the *hernie par glissement* as one in which a segment of the colon with no mesocolon or a very short one, is drawn into or slips into a hernial sac by the inclusion in the sac of the parietal peritoneum to which it is attached. He describes the mechanism involved and states that three of his thirteen patients in this category died soon after the operation, from peritonitis.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 10, XLI, No. 20, pp. 689-736

75 Fetal Atelectasis and Bronchiectasis. E. Buchmann.
76 Thyropriva Tetany Cataract. (Tetaniekatarakt nach Strumektomie.) A. Vogt.

Berliner klinische Wochenschrift

July 31, XLVIII, No. 31, pp. 1409-1423

77 *Etiology of Splenic Cysts. O. Küstner.
78 *Tincture of Iodin in Gonorrheal Arthritis. O. Hildebrand.
79 Mutation of Bacteria. Baerthlein.
80 Biologic Action of Mesothorium. A. Bickel and Minami.
81 *Vegetable Albumin in Treatment of Diabetes Mellitus. L. Blum.
82 Visual Field in Caput Obstipum. G. Abelsdorff and E. Bibergeil.
83 *Bilateral Paralysis of Accommodation Caused by Salvarsan.* Makrocki.
84 Eel-Blood Conjunctivitis (C. ichthyotoxica.) K. Steindorff.

77. **Etiology of Splenic Cysts.**—In a case of splenic cyst cited by Küstner, a woman, aged 39, had noticed a tumor the size of a head in the left hypochondriac region which had caused her considerable pain. This condition had existed for two years when the author decided to extirpate what he considered to be a cyst of the spleen. The result was an entirely successful one. The patient was discharged on the sixteenth day after the operation with a blood count of 23,000 leukocytes, 6,000,000 erythrocytes and 72 per cent. of hemoglobin. Three and a fourth years after the operation the patient is entirely well and is able to carry on her work. There have never been any nutritional disturbances or gland swellings. Four-fifths of the spleen in this case was occupied by the cyst which contained a sulphur-yellow fluid. Echinococcus cyst was ruled out. It is evident then that in this case splenic function had ceased long before the splenectomy was done so that the patient's economy had easily come to do without the spleen, to which fact the author ascribes the good results after the operation. As a cause of the condition in this case it is suggested that a twisted pedicle which was found at the operation was responsible.

78. **Iodin in Gonorrheal Arthritis.**—Hildebrand reports very favorable results from the injection of tincture of iodin into a joint that is the seat of a gonorrheal arthritis. For several

days after the injection the swelling increases notably and then disappears very rapidly. The pain subsides quickly, no new fluid is formed and motion is restored. He has used this method for nine months and thinks well of it. He cautions against using too much iodin. He injects a 5 per cent. solution.

81. **Vegetable Albumin in Diabetes.**—Experimental research and clinical observation have convinced Blum that vegetable albumin is a far more useful component of a diabetic diet than meat albumin. He suggests that the former be substituted for the latter more often than has been done heretofore.

Münchener medizinische Wochenschrift

July 25, LVIII, No. 30, pp. 1601-1627

85 Hyperthyroidism; Frequency and Diagnosis. (Thyreosen.) A. Krecke.
86 Prosthesis After Gritti's Amputation. B. Riedel.
87 Genesis of Atypical Epithelial Growths. (Kausalen Genese atypischer Epithelwucherungen.) L. Wacker and A. Schmincke.
88 *Adrenalin Anemia in Nephritis. H. Pribram.
89 Subcutaneous Syphilis Vaccination of Monkeys. (Syphilisimpfung niederer Affenarten.) G. Baermann.
90 Recovery in Psychoneuroses. C. Römer.
91 *Tolerance of Infants for Morphin. M. Wichura.
92 Tachycardia Occurring During Blood-Pressure Measurement. K. Grassmann.
93 Auto-Infection in Obstetrics. Miller.
94 Conservative (Bier) Treatment of Furuncles of the Face. W. Keppler.
95 Technic of Metreurysis. G. A. Wagner.
96 Physiology and Pathology of the Colon. G. Schwarz.
97 Trauma and Meningitis. H. Merkel.

August 1, LVIII, No. 31, pp. 1657-1682

98 Tuberculosis of the Female Genitalia. (Beziehungen der Tuberkulose zu den weiblichen Genitalien.) H. Sellheim.
99 Vasoconstrictors in Serum in Rachitis, Tetanus and Exudative Diathesis. (Vasokonstringierende Substanzen.) H. Hirschfeld and L. Hirschfeld.
100 Antibodies Formed in Vitro. (Sichtbarer Nachweis von Antigen.) W. Weichardt.
101 *Theory of Menstruation. Görl.
102 Feeding of Nursing Women. W. Birk.
103 Prophylaxis and Treatment of Ophthalmia Neonatorum. A. Hörder.
104 Peptic Ulcer (peptischen Affektionen) in Stomach, Esophagus and Duodenum. G. B. Gruber.
105 Action of Salvarsan in Syphilis of the Larynx. F. Henke.
106 *Salvarsan Accident. C. Mann.
107 *Displacement of Larynx in Tuberculosis. (Kehlkopfverschiebung.) O. Fried.
108 Diagnosis of Hemoptysis. (Erkennung der Lungenblutung.) Mann.
109 Rumpel-Leede's Sign in Scarlet Fever. C. Leede.
110 Technic of Saline Infusion. G. Lefmann.
111 Hyperthyroidism. (Thyreosen.) A. Krecke.
112 Genesis of Atypical Epithelial Growths. L. Wacker and A. Schmincke.

88. **Anemia in Nephritis.**—Pribram is of the opinion that in nephritis the retention of poisonous products serves to stimulate the function of the adrenals, thus leading to the production in excess of adrenal secretion. The retention in turn of this secretion leads to anemia. The author offers this as a solution for the occurrence of anemia in nephritis.

91. **Tolerance of Infants for Morphin.**—Wichura reports the case of a three months' old child whose father gave to it, by mistake about 2 centigrams of morphin. The child went to sleep at once. An hour after the mother became alarmed at the appearance and condition of the child and sought the aid of the author. The stomach was washed out at once and other measures of resuscitation were employed. Sixteen hours after the ingestion of the morphin the child was in a fairly good condition and on the following day had recovered entirely. The author points out that this case illustrates the fact that the usually assumed intolerance in infants for morphin is not always correct. This child was given more than twenty times the dose for an infant of its age and one hour elapsed before any measures to resuscitate were resorted to so that the initial gastric lavage would not contribute in large measure to the recovery of the child. Wichuria therefore believes that he is justified in assuming that this was a case of extreme tolerance for morphin.

101. **Theory of Menstruation.**—Görl reaches the conclusion that the internal secretion of the ovary first appears at puberty and that it leads to the development of the secondary sexual characteristics. At the time of the maturation of an ovum this secretion is changed in slight degree so that it cannot enter into combination with antagonistic substances and then menstruation occurs. A change in the chemical composition of the secretion or disturbances caused by irregular maturation of the ova will produce menstrual disturbances, and even lead to the formation of uterine myomas and cardiac disturbances. In other words, the condition produced may simulate shock. The internal secretion of the ovary is held to be a most important one and is believed to be related to disturbances both general and local.

106. **Salvarsan Accident.**—Three days after the intravenous injection of salvarsan the patient, whose history is given by Mann, became unconscious, with complete loss of all reflexes and sensibilities. This condition lasted for three days when it subsided gradually.

107. **Displacement of Larynx.**—In a case of pulmonary tuberculosis involving the right apex, extensive contraction of lung tissue displaced the larynx, pulling it over as far as the sternocleidomastoid muscle. There was no anatomic change in the larynx or thyroid. The median line of the larynx was directed toward the right, and the left cornu of the hyoid bone was very prominent. The extreme weakness of the patient made an extensive and thorough examination impossible.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

July, XXXIV, No. 1, pp. 1-132

113 The Mammary Theory of Eclampsia. (Das Martyrium der voraussetzungslosen Wissenschaft.) H. Sellheim:
114 *Urogenital Tuberculosis. (Ergebnis der Debatte des XIV. Gynäkologenkongresses über die Urogenitaltuberkulose.) B. Krönig.
115 *Symptomatology and Treatment of Retroflexion of the Gravid Uterus M. Graefe.
116 Glycogen in the Human Placenta. K. Flesch.
117 Simplified and Improved Technic for Extraperitoneal Cesarean Section. H. Sellheim.
118 Serotherapy of Puerperal Sepsis. G. Bohnstedt.

114. **Urogenital Tuberculosis.**—Krönig comments on the wide divergence of views expressed at the recent Gynäkologen-Kongress on this subject, which was the main topic appointed for discussion. It was stated there that over 60 per cent. of the women with urogenital tuberculosis are under 30 and the primary operative mortality ranges from 10 to 13 per cent., while many clinicians have not observed that the general health seems to suffer very much from the urogenital tuberculosis. The point now is to compare the ultimate outcome in the operative cases with that under expectant treatment. This will decide the question. To date only one thing seems established beyond question, namely, that removal of the one kidney affected with tuberculosis gives brilliant results if done in the earliest stages.

115. **Diagnosis of Retroversion of the Gravid Uterus.**—Graefe states that sixty-one of his 200 patients in this class had no disturbances from their retroversion. The anomaly corrects itself in a large proportion of cases, but as it is impossible to foresee whether this will occur, he advises a pessary, especially if there is a history of preceding abortions. Spreading the fingers in the vagina, in front of the pessary, sometimes corrects the retroversion as also the ventral decubitus or knee-chest position. In seven cases the uterus was held down by adhesions, which he was generally able to correct by manipulations from without but a laparotomy was required in one case.

Zeitschrift für Urologie, Berlin

June, V, No. 6, pp. 409-496

119 *Endourethral Measures with Chronic Proliferating Urethritis. H. Lohnstein.
120 *Unreliability of Chromocystoscopy in Diagnosis of Kidney Functioning. M. Roth.
121 Regeneration of Prostatic Portion of Urethra in Connection with Experimental Research on Consequences of Prostatectomy. A. Wischnewsky.
122 Double Pelvis in Right Kidney. (Doppeltes Nierenbecken, das eine infiziert, das andere gesund.) W. Stark.

119. **Chronic Proliferating Urethritis.**—Lohnstein announced a while ago that the reason why gonorrheal urethritis in certain cases proves so rebellious to treatment is because the mucosa has thrown up ridges behind which infection still lurks or actual polyps or papillomas have developed. These proliferations cause no subjective disturbances, but treatment is ineffectual until they are removed or the parts are other-

wise sterilized. He has devised several instruments for visual inspection and cauterization or curetting, and he relates a number of cases showing their advantages and the cures he has realized with them in cases which would previously have been deemed incurable. In one case severe chronic prostatitis with diffuse proliferating inflammation of the posterior urethra simulated chronic retention from enlargement of the prostate. An incision with his incisor-urethroscope in the middle and right lobes put an end to all the symptoms. His treatment failed in four cases, owing to constant recurrence of papillomas without continuous medical supervision.

120. Chromocystoscopy.—Roth reports some experiences which show that the indigo-carmin method of testing the functioning of the kidney is less reliable than the old methods of cryoscopy and phloridizin glycosuria. Cryoscopy fails in all cases in which there is no functional disturbance. For these, catheterization of the uterus is the only means of obtaining information. The indigo-carmin method is instructive only in the cases of advanced disease while changes in the freezing-point and the phloridizin method show pathologic conditions in their incipiency in most cases. There is one exception to this, however, he adds; with calculi in the kidney the indigo-carmin method may give valuable information beyond that attainable with any other technic. With enlargement of the prostate and with retention of urine the indigo-carmin method is liable to do good service as a preliminary to operative treatment, but it is seldom necessary as the urine can be drawn with a catheter from the bladder without the need for the test.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 11, XXXII, No. 83, pp. 875-882

123 *Foot Sign of Meningitis. (Il tono del piede.) L. Minervini.

123. Ankle Sign of Meningitis.—Minervini has found it possible to elicit a sign of meningitis with the foot which seems to be the equivalent for the Kernig sign and to be the opposite of the ankle clonus. It is much easier to apply the test to the foot than the Kernig technic to the leg, and the interpretation of both seems to be the same. He found the foot tonus, as he calls it, pronounced in a typical case of tuberculous meningitis in a young man, reported in detail, confirmed by necropsy, and in a case of hysteric astasia-abasia, but it was absent in a case of infantile spinal paralysis, its absence here confirming its significance in the other cases. The ankle is grasped with one hand and the toes with the other, and the foot is bent up toward the knee with a forcible push. When the phenomenon does not exist the foot drops back again as soon as it is released, but in case of the pathognomonic reflex contraction, the flexion persists. This ankle tonus is frequently found in inverse proportion to the knee-jerk. It seems to be merely an exaggeration of the normal muscular tonicity, and thus he has encountered it in meningitis, sciatica, spastic tabes and hysteria.

Policlinico, Rome

July 9, XVIII, No. 28, pp. 873-904

124 C (Contributo allo studio delle cisti
permatico.) A. Magi.
125 T (Appunti sulla genesi e sulla
E. Fabbri.
126 Functioning of Remaining Kidney After Neprectomy. L. Dominici.
127 Hysteric Spasm of the Larynx. R. Sabelli.

July, Surgical Section No. 7, pp. 289-336

128 Elastic Tissue in Appendicitis. L. Gargani.
129 Incarcerated Hernia of the Bladder. (Caso di cistocele inguinale puro strozzato.) A. Venturi.
130 Antitoxic Action of Iodin in Tuberculosis. S. Ricci.
131 Pathogenesis of Reflex Anuria with Calculi. Puglisi-Allegra.

Upsala Läkareförenings Förhandlingar

XVI, No. 6, pp. 349-479. Last indexed May 13, p. 1432

132 The Osmotic Pressure During Development of Frog Embryo. (Osmotiska tryckets förhållande hos Rana temporaria under
Backman and J. Runnström.
133 M Drugs on the Heart. (Om
på hjärtat belyst genom
C. G. Santesson.
134 Microscopic Analysis of Lipoids. (Om metoder att mikroskopiskt påvisa lipoider och därmed sammanhängande försök till mikrokemisk analys.) R
135 Three Cases of Focal Reaction in the L
with Comparison of Physical and
Apex. G. Bergmark

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

PATHOLOGY AND BACTERIOLOGY [OF THE EYE]. By E. Treacher Collins, F.R.C.S., Surgeon to the Royal London Ophthalmic Hospital, and M. Stephen Mayou, F.R.C.S., Surgeon and Pathologist to the Central London Ophthalmic Hospital. *An International System of Ophthalmic Practice.* Edited by Walter L. Pyle, A.M., M.D., Philadelphia, Member of the American Ophthalmological Society. Cloth. Price, $4 net. Pp. 558, with 237 illustrations. Philadelphia: P. Blakiston's Son & Co., 1911.

STUDIES ON FRUIT RESPIRATION. 1. The Effect of Temperature
Fruits. 2. The Effect of Picking on the Rate
Dioxid by Peaches. 3. The Rate of Accumu-
Respiration of Fruit Under Adiabatic Condi-
Assistant Chemist, Division of Foods. Bull. 142, Bureau of Chemistry. U. S. Department of Agriculture. Paper. Pp. 40, with 17 illustrations. Washington: Government Printing Office, 1911.

A TEXT-BOOK OF MEDICINE. By G. Dieulafoy, Professor of Clinical Medicine at the Faculté de médecine de Paris. Authorized English Translation from the Fifteenth Edition of "Manuel de pathologie interne" by V. E. Collins, M.D., M.R.C.S., L.R.C.P., and J. A. Liebmann, Ph.D., M.A., LL.D. In two volumes. Volumes I and II. Cloth. Price, $12. Pp. 2081, with 105 illustrations. New York: D. Appleton & Co., 1911.

THE GOULSTONIAN LECTURES ON THE SENSIBILITY OF THE ALIMENTARY CANAL. Delivered at the Royal College of Physicians on March 14, 16 and 21, 1911. By Arthur F. Hertz, M.A., M.D., F.R.C.P., Assistant Physician and Physician in Charge of the Department for Nervous Diseases, Guy's Hospital. Cloth. Price, $1.50. Pp. 83. New York: Oxford University Press, 1911.

CARBONIC-ACID SNOW AS A THERAPEUTIC AGENT IN THE TREATMENT OF DISEASES OF THE SKIN. By R. Cranston Low, M.B., F.R.C.P., Assistant Physician to the Skin Department, Royal Infirmary, Edinburgh. Cloth. Price, $1.50 net. Pp. 117, with illustrations. New York: William Wood & Co., 1911.

DISEASES OF THE STOMACH, WITH SPECIAL REFERENCE TO TREATMENT. By C. D. Aaron, Sc.D., M.D., Professor of Gastro-enterology and Adjunct Professor of Dietetics in the Detroit College of Medicine. Cloth. Price, $4.75 net. Pp. 555, with 42 illustrations. Philadelphia: Lea & Febiger, 1911.

THE FOOD LAWS OF THE UNITED KINGDOM AND THEIR ADMINISTRATION. By F. L. Dunlap, Associate Chemist and Member of the Board of Food and Drug Inspection. Bull. 143, Bureau of Chemistry. U. S. Department of Agriculture. Washington: Government Printing Office, 1911.

THEORY AND PRACTICE OF THYROID THERAPY. A Book for General Practitioners. By Herbert Ewan Waller, M.R.C.S. England, L.R.C.P. London, Honorary Anesthetist Birmingham Dental Hospital. Cloth. Price, $2 net. Pp. 154. New York: William Wood & Co., 1911.

LABORATORY MANUAL OF PHYSIOLOGY. By Frederick C. Busch, B.S., M.D., Professor of Physiology, Medical Department, University of Buffalo. Second Edition. Cloth. Price, $1.50 net. Pp. 212, with 46 illustrations. New York: William Wood & Co., 1911.

FORTIETH ANNUAL REPORT OF THE MANAGERS OF THE MIDDLETOWN STATE HOMEOPATHIC HOSPITAL AT MIDDLETOWN, N. Y., TO THE STATE COMMISSION IN LUNACY. For the Year Ending Sept. 30, 1910. Paper. Pp. 70, with illustrations.

A MANUAL OF MATERIA MEDICA FOR MEDICAL STUDENTS. By
Assistant Professor of Materia Medica in t
ege, Philadelphia. Cloth. Price, $3.50 ne
: Lea & Febiger, 1911.

CLINICAL LECTURES ON THE ACUTE ABDOMEN. By William Henry Battle, F.R.C.S., Surgeon to St. Thomas's Hospital. Cloth. Price, $1.50 net. Pp. 107, with 10 illustrations. New York: William Wood & Co., 1911.

HYGIENE FOR NURSES. Theoretical and Practical. By Herbert W. G. Macleod, B.Sc., M.D., M.S. Edin. Cloth. Price, $1.50 net. Pp. 233, with 49 illustrations. New York: William Wood & Co., 1911.

NINETEENTH REPORT OF THE GERMAN HOSPITAL, 3305 FRANKLIN AVE., CLEVELAND, OHIO. From April 1, 1910, to Jan. 1, 1911. J. S. Kosower, Superintendent. Paper. Pp. 39, with illustrations.

FORTY-FOURTH ANNUAL REPORT OF ST. PETER'S HOSPITAL, BROOKLYN. Under the Charge of the Sisters of the Poor of St. Francis. For the Year 1910. Paper. Pp. 16, with illustrations.

TWENTY-FIRST ANNUAL REPORT OF THE BOARD OF MANAGERS OF THE WEST PHILADELPHIA HOSPITAL FOR WOMEN, 4035 Parrish St. January, 1911. Paper. Pp. 40, with illustrations.

FORTY-SECOND ANNUAL REPORT OF THE WOMAN'S HOSPITAL AND INFANTS' HOME. For the Year 1910. Paper. Pp. 25, with illustrations. Detroit, Mich., 1911.

ANNUAL REPORT OF THE JEWISH HOSPITAL ASSOCIATION OF CINCINNATI, OHIO, OCTOBER, 1910. Paper. Pp. 48, with illustrations. Samuel Mayer, Secretary.

FORTY-FIRST ANNUAL REPORT OF THE BANGOR CHILDREN'S HOME. Reports read at the Annual Meeting, Jan. 3, 1911. Bangor, Me. Paper. Pp. 18.

ANNUAL REPORT OF THE HOSPITAL OF THE SACRED HEART, MANCHESTER, N. H. For the Year 1910. Paper. Pp. 36, with illustrations. 1911.

FORTY-SEVENTH ANNUAL REPORT OF THE CARNEY HOSPITAL, SOUTH BOSTON, MASS. For the Year 1910. Paper. Pp. 62, with illustrations.

EIGHTEENTH ANNUAL REPORT OF THE BEVERLY HOSPITAL, BEVERLY, MASS. For the Year Ending Dec. 31, 1910. Paper. Pp. 53

REPORT OF THE TRUSTEES OF THE CAMBRIDGE HOSPITAL. For the Year 1910. Paper. Pp. 45. January, 1911.

THE ANNUAL REPORT OF ST. JOSEPH'S HOSPITAL, WILLIMANTIC, CONN. 1909-1910. Paper. Pp. 44.

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THE RELATION OF THE MEDICAL PRACTITIONER TO HEALTH DEPARTMENTS *

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CHICAGO

CHAIRMAN'S ADDRESS

As a general proposition we are willing to earn a thing but once. When a man has served years in an association, he sometimes comes to think he has earned its rewards. If, then, an office is bestowed on him he is likely to accept it as his just due and to give the duties of his position none of his brains or energy.

I have not done enough work in this Section to have earned reward at your hands, therefore, I have felt it incumbent on me to earn the honor which you have given me, by work as chairman.

Dr. Jones and I have worked out a somewhat novel plan for your meeting. This plan was submitted to the Executive Committee of this Section, Drs. Hurty, White and Gorgas, and then it had the approval of the general officers of the Association.

We submit it to you with this understanding: The responsibility for its success or failure rests on you who are in attendance on this meeting, and is shared by those who are to attend subsequent meetings.

The plan for this meeting has three parts. The first part is that in place of papers there will be committee reports on health methods. The Section will carefully consider these and then vote as their judgment directs.

Preventive medicine has newly come to American life. It has newly come to most of those who are practicing it. Two years ago there was no instruction leading directly to the position of health officer. Now Harvard and Columbia have courses preparing for such work, Michigan establishes such a department in the fall, and Northwestern and several other universities are giving courses in these subjects for medical men; various colleges of technology are giving courses in sanitary engineering which partially qualify. The School of Civics and Philanthropy gives a course in social science, and the Chicago Health Department, incorporated as the Chicago School of Sanitary Instruction, gives practical work. But, much as this appears, it is but a bagatelle as compared with the large number of physicians newly come to the position of health officer, untrained and untried, and the large number of towns with newly created health departments—like a butterfly newly come from a grub, looking around on a new world and beating a new element with a new organ—new wings. They all want to do what is right. But what is right?

Therefore, we have decided to deliberate on methods of doing things. When we have carefully counseled, we shall vote. Such methods as meet the approval of the Section will be sent to the House of Delegates or to the Council on Health and Public Instruction. The reason for thus referring the Section actions is twofold: First, the By-Laws of the Association prescribe that resolutions cannot be passed by the Sections; second, measures gain prestige by coming from the Association as a whole.

The second part of the plan is this: Prior to and during the meeting there will be a series of health talks for the general public. The American Medical Association is a peculiar organization. Its deliberations have something more to do with human welfare than those of the average organization. Hitherto it has gone to a community and deliberated behind closed doors.

The people of the host city have not seen much of those attending except as they have met them at receptions and lawn parties. That is not right. Why go to the trouble of entertaining four thousand physicians if no lasting good is to come of it? Should we not earn our welcome by conferring a lasting benefit on those who have given of their time and money for our entertainment?

A campaign of public education in southern California was begun last week. It will continue for another week. We trust that many citizens of this vicinity will have learned something new about right living as the result of lectures given by members of this Section and others.

The third part of the plan is a health education exhibit for physicians. Part of it hangs on the walls of the exhibit room and part of it is to be found in the California and Louisiana health cars.

This is the plan for this meeting which your officers have worked out.

You also honored me with an election as orator. As orator I wish to address you on "The Relation of the Medical Practitioner to Health Departments."

ORATION ON STATE MEDICINE

Death represents the passing of the human being from the known into the unknowable. What is life? What is death? Why is death? What after death? All of these are unknowable. The end of life is no more a mystery than its beginning, but the mind of the being at the beginning is too feeble to know or care. At the end it has learned much and yearns for more. It asks many questions. It does not enjoy being baffled. Therefore, everything connected with this mystery takes on attributes of mystery. The man facing death leans on his physician. His imagination clothes that physician with some of the superhuman qualities.

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* Chairman's Address and Oration on State Medicine before the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

At first he was a god, and then a demigod; then a man, but bewigged and "caned" and separate and oracular; and now he wears a bob-tailed coat, smokes cigarettes and is quite human. The old-style physician was regarded with awe, was given a blind faith and was tenderly loved. *His scientific service was very slight*—but he was good for sickness. His coming brought peace and hope. As the scientific capacity of physicians has become more worthy of faith, they have been given less. And now the old, blind, unreasoning faith has gone and it will never return. The bringing of medicine out into the plain, white light of common day has reduced the death-rates, increased the average age at death, the average length of human life. It has substituted real for psychic benefit. But all of this is working changes which are not fully comprehended by physicians or laity. Why has the old faith died? Several things have operated to bring it about.

Chief of these is the general growth of information. *There was a good deal of humbuggery in the old practice*, and humbuggery has fallen into hard lines everywhere. People are now better informed, and they judge physicians and everything else better than they used to. Wonderful cures made by physicians they know now were spontaneous cures.

Drug-stores have served to break the charm in two ways. More of a spell goes with medicine when the physician ladles it out than when he writes an easily-understood prescription which the druggist dispenses. In the second place, the very matter-of-fact druggist's over-the-counter prescription ends many an ill that formerly added to the miracles of the physician.

Patent medicines and advertising doctors cure many *ills strangely like the ills the physician used to cure.* When a patient hears the physician abuse patent medicines and advertising doctors, that patient's faith in them often dies, but his faith in physicians shrinks a good deal also. Then, too, those advertisements on the wrappers and in the papers, taught us a great deal of the false, but there was here and there a kernel of truth, and the people are learning how to winnow the wheat from the chaff. Learning from this source, abused by physicians, has decreased general faith in physicians.

The fight on homeopathy has served to decrease the old, blind faith. For did not the homeopathic physician's patients recover? And did not the old doctor say there was "nothing in it?" He could not have been infallible.

And then Christian Science has taught the people that if they would just sit still and bear their ills, they would occasionally get in bad holes, but that often they came out all right; and those who came out all right think the physician was not so smart after all. So they pay the "Science" healer all the more jubilantly because of their resentment against the older teachings.

A large part of the old physician's work was nursing work, and then along came trained nurses and did many of those mysterious things as well as, and often very much better than, we remember the man of mystery doing them.

Then the specialist in his highly trained field makes the old-style physician look awkward, inefficient, and very commonplace; the consultant, the very philosophy of whose presence is that he knows more, necessarily makes the patient think that the old-style doctor knows less; the hospital takes the patient from an atmosphere where the family physician is the only tall, strong thing, into an atmosphere of nurses, and other doctors, and comparisons.

It is a sad thing to see some parts of the old pass away, yet it is quite inevitable. Suppose an old-style physician were to determine that he would have no nurses, no hospitals, consultants, specialists or druggists, how long would he hold any patients? The people would lose not only old-style, blind faith, but all faith; he would be discarded, friendless—an outcast. It is inevitable. We can pause to drop a tear, but after this *we must move on.* We must adapt ourselves to the new requirements, being sure that somehow they are for the best.

In the last analysis the thing comes back to this: The people want to be cured, or kept well. It is for them to decide how this is to be done and by whom. What posi*tion toward this change is it wise for the profession to take?* My position is that nothing is gained by opposing the inevitable. Much is lost by opposing it; much is gained by adjusting oneself to it. That which is inevitable for the long run is right for the long run.

Taking it on the average, I do not think physicians make much from treating contagious diseases. Diphtheria now means but two or three visits; and probably a reputation of attending diphtheria scares away more visits than that. The same thing is true, though in lesser measure, of other contagious diseases. Occasionally *a physician carries contagion, or the family thinks he does*; it comes to the same thing. *It costs the practice* of that family at the very least.

Do you think a physician who has a reputation as a hider of contagious disease gains anything in the long run? The number of mothers who are protecting susceptible children is such a great majority that their fear and distrust of a man with this reputation presently constitute a very definite liability.

There is not much money in treating consumption, above all in the old-fashioned way. The patient may *pay for the visits for a few months*, but soon the money is all gone and then the physician gets nothing, and *oftentimes he has to chip in to help out.* But suppose the physician is slow in making his diagnosis or hides it *from the health department, or from the patient or family.* If you have ever stood in the streams in which *the consumptives flow, I need not tell you how violently* they abuse the doctor who deceived. In the long run, *the only money in consumption is for the man who for himself and his patient lives up to the law.*

Suppose we shift the illustration to school inspection. It *is disconcerting to have a child sent home for diphtheria determined by culture when you have told the family it was an ordinary sore throat.* But the case being diphtheria, the school doctor must tell the truth. Averag*ing all the cases, the family physician gains more by standing up to the truth than by resisting.*

Again, *it is quite disconcerting to have a child in one of your families come home with a card saying the tonsils should be removed when you had not so advised*; but the wise thing to do is to agree with the diagnosis when it is right, and remove the tonsils. The fact of the business is, the family gets accustomed to the appearance of the mouth-breather; the family physician is anesthetized by repeated monotonies; nevertheless the child is not well—is not able to study with a high degree of efficiency and needs what is advised. Shall the physician take the position that because there is no immediate danger there is no ultimate need? There is no surer way by which he can ruin his eventual standing with that family. There is no surer way by which he can accomplish his ultimate ruin than by assuming this point of view.

These illustrations might be multiplied indefinitely.

It is axiomatic that nothing which puts a great strain on the community, the family or the individual, brings money to the physician (examples: epidemics of cholera and yellow fever). Wherever industry is paralyzed the few who can pay are more than offset by the demands on time, energy and money from those who cannot pay. Not only is there an increase in bad accounts from those that have the specific diseases, but there is an increase in bad accounts for services rendered in connection with other illnesses. Any completely disabling illness continued for more than three months makes the average man a source of loss to the physician. The physician's best source of income is from the diseases which do not greatly disturb the serenity of the community, the family, the individual. By increasing the percentage of the population who are past 30 years of age, the incomes of doctors are increased, since these are the most profitable patients. By decreasing the death-rates among babies, the physician's revenues are increased.

But it is more profitable to return to the general principles.

The end is the cure and prevention of disease. Every measure and every man is a means to that end. The community is going to look to somebody for its health conservative functions. Health departments are community agencies created by and maintained by the community. Their general reputation for altruism is better than is that of the physician. They are closer to the people. Day by day they become closer. Day by day they do new things for the people. It is the more economic way for the individual; it is in keeping with the broader economies. For all of these reasons health departments are inevitable; they will survive. The people will look to them for health conservation. When they look, shall they find the physicians there in partnership, or shall they find them in antagonism? If the community comes to regard physicians as antagonistic to health departments, do the former gain or lose? There is but one answer which far-seeing would dictate.

There is a general law of society that those who serve are supported. Society starves the useless. If the medical profession is useful, in this inevitable program of society it will be supported; otherwise it will not be. As I see it, the wise thing for the medical profession to do is to get right into and man every great health movement; man health departments, tuberculosis societies, child and infant welfare societies, housing societies, etc. The future of the profession depends on keeping matters so that when the public mind thinks of these things, it automatically thinks of physicians, and not of sociologists or sanitary engineers. The profession cannot afford to have these places occupied by others than medical men. A requisite, therefore, is that there should be places where physicians can get training in sanitation, preventable disease and in hygiene, including housing and ventilation.

This all means a readjustment of medical work. In the readjustment, the revenues of medical men who are giving a low grade of medical service will decrease to almost nothing. Christian Science, hospitals, dispensaries and general intelligence have decreased the revenue of these men until it is now less than that of skilled labor. They have no money for luxuries, nothing for a rainy day, nothing for the proper education and care of their children. Nevertheless, the man who makes his money from superficial home visits must suffer more. Even much of the little that he is now doing will be lost to him in some measure through the care of health department officers, but much more through other agencies. The children who are now going through the schools and who have been going through them for ten years, will establish the practice within the next ten years. Would we not eventually gain by willingly giving to Christian Scientists, counter prescribers and others, all those who can be cured by any form of mental therapy, and concentrating our energies on more worthy fields?

Health department work imperils the existence of certain physicians, in that it tends towards socialism; it tends toward state medicine. The citizen says, "If the state will do these things for me, why should I employ a physician for anything?" Just now hospitals and dispensaries are doing this even more potently. Whatever position against health departments any group of medical men may take, they must take a similar position against hospitals and dispensaries.

Does this mean that all medical work will be taken over by health departments and that private physicians will have nothing to do? There is no disadvantage but some advantage to the physician in this, provided there is a proper regulation of the relation between work to do and men to do the work. But this will not come about in your time or mine. Because people don't rush to physicians for headaches, colds and constipation, some people believe that the rush to physicians has stopped. It has stopped, for that kind of physicians. But a better public intelligence will mean more medical work and more pay to the medical men doing high-grade work.

Perhaps the most illuminating way to look at the matter is to see what effect state education has had on educators. A physician is prone to let his irritation over the loss of a case of contagious disease through enforced hospitalization make him forget the many ways in which that policy, broadly applied, has inured to his benefit. Let us try for a broader view by seeing what has been the effect of enforced state education on teachers. The people are now practically universally educated. The work is done with regard for the broader economies. The number of teachers has multiplied many fold. The pay of teachers has increased; the old academies and private schools and private teachers have nearly all come to an end, but colleges, universities, high schools and grammar schools have replaced them several times over. Is it not reasonable to suppose that the impending and quite inevitable changes in medicine will mean people in better physical condition, work done more economically, more doctors, and especially better doctors?

What is the outlook for better service? One out of every twelve babies dies from birth accident. There should be no deaths from birth accidents. What a field for competent obstetricians! One out of every four babies dies from intestinal disease. None of the babies born on the boulevards or in the better residence districts dies from intestinal disease. What a field for pediatricians! Proper supervision through life prevents the development of heart and kidney disease. What a field for the alert family physician! There is a stage in every case of consumption in which the disease is certainly curable in three months. What a field for the alert internist!

Not one-tenth of the tonsils which should be removed are being removed. What a field for the laryngologist! A large part of our people are working at low efficiency by reason of poor sight. What a field for the ophthalmologist!

The orthopedist and the surgeon could increase the working capacity of a large part of the people if they could get at them. Probably there are not enough surgeons to do all the surgery demanded by considerations of the greatest efficiency, comfort and happiness. And certainly there are not enough dentists to do all the needed dentistry.

These views do not go far into the future. They are right at hand.

I hope I have said enough to prove that nothing is gained by the medical profession by opposing the inevitable—that there is the brightest of futures for the profession and for the individual physicians who recognize the inevitable and properly adjust their methods, their labors and their point of view so as to make the largest use of it.

CONCLUSIONS

1. The best interests of medical men demand that they adapt themselves to the inevitable evolutions in their work and in that of health-governing bodies.
2. The physicians should always take the leadership in health movements in their communities.
3. To offset unnatural prejudices, a campaign to demonstrate that this leadership has broad and altruistic motives must be maintained and all right-thinking people must be brought together in support of the great work of physical welfare.
4. This Section must be so enlarged as to affiliate with it associations of health officers, Young Men's and Young Women's Christian Associations, sociologists, sanitary engineers, school examiners, those interested in child hygiene, infant welfare, milk commissions and tuberculosis associations, ventilating engineers, housing students and school teachers' associations: in a word, all of those bodies that are working for physical welfare. A working plan for cooperation with these should be worked out by this Section of the American Medical Association, so as to prevent duplication.
5. Subsections for some of these should be established in this Section. The constitution and by-laws of the American Medical Association should be so amended as to include such workers for physical welfare as choose to come in.
6. Every county medical society should inaugurate sections to take up different divisions of welfare work and should give modified membership in their societies to all local workers for physical welfare.
7. There should be a health journal or health newspaper maintained by this Association for the purposes of public education on physical welfare.
8. This Section must work closely with the Council on Hygiene and Public Instruction, directing it and receiving direction from it.

Imbeciles as Potential Criminals.—G. A. Auden quotes Fernald (*Jour. Crim. Law and Criminology*) as saying that it cannot be too strongly impressed on our notice that every imbecile, especially the high-grade imbecile, is a potential criminal, needing the proper environment and opportunities for the development and expression of his criminal tendencies. The life history of the imbecile put under permanent protection and training at an early age is very different from that of the feeble-minded who grow up at large in a modern urban community. Nearly all of the imbeciles trained from childhood or youth may be taught habits of industry and comparatively good behavior, and a large proportion of them settle down to a condition of inhibition of the antisocial traits, and indeed to a condition of ostentatious pride in the virtues which they unwillingly practice.

SOME DIFFICULTIES ENCOUNTERED IN THE THERAPEUTIC USE OF TUBERCULIN *

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That the intelligent employment of tuberculin in the treatment of tuberculosis is attended with excellent results, is now almost universally admitted. To be sure, there are still some who are unconvinced. Absolute unanimity of opinion, however, has rarely been attained in medicine, and we are not expecting it in this instance.

Tuberculin is by no means an easy remedy to administer. It requires much careful study and close observation to be able to use it to best advantage. The proper administration requires the giving of the right dose at the right time. To administer the right dose at the right time requires judgment born of experience; for it cannot be determined by rule. Tuberculin treatment is not what it is often supposed to be: merely the introduction of a certain number of drops of a certain dilution of tuberculin into the body tissues by means of a hypodermic syringe, and repeating it at certain intervals according to rule. If this is all there is in tuberculin treatment it might as well be turned over to a nurse or to the patient for self-administration.

Tuberculin can produce a varying degree of good results, also a varying degree of harmful results, according to the method of its administration. Its proper administration can be carried out only when the physician has an intelligent idea of the nature of the remedy and its action and when he has made a careful study of tuberculosis, both as to its clinical course and its pathology. This should be self-evident; yet it is disregarded in practice, if we are to judge from the manner in which it is often employed to-day. It is often administered as though it were an indifferent remedy and as though tuberculosis were a disease of no seriousness.

The dosage of tuberculin is modified by many influences, such as individual susceptibility, the character and location of the lesion, whether it is extensive or circumscribed, active or quiescent, according to the conditions under which the patient is being treated, whether in an institution or in ambulatory practice; whether he is resting or working; according to the accompanying complications and conditions, such as colds, influenza, bronchitis, hemorrhage, menstruation; also according to the preparation employed. There can be no set rule. The man who understands this remedy individualizes and aims at the production of results. He forgets stated intervals, and rules for increase of dosage and is guided entirely by the effect obtained. A hypodermic syringe filled with tuberculin cannot cure tuberculosis. It requires an intelligent brain to guide it.

Having had the honor of being one of the pioneers in the therapeutic employment of tuberculin and for several years having been one of the largest users of it in our profession, I have been consulted personally by many physicians, and others have written me for instructions how to use it and have related their difficulties and asked my aid in overcoming them. From my own experience and from the experience of these physicians, I hope I may be able to steer others clear of some of the difficulties that are encountered in this line of therapy.

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

Unfortunately, those who use tuberculin most intelligently are divided into two camps, those who believe in using progressively larger and larger doses, suiting the dose to the patient and the pathologic process, and spacing the dose according to its size and the conditions present; and those who believe in the repeated small doses given at stated intervals. Between these two camps there are many stragglers who, without any particular ideas, are following no rule, but simply injecting tuberculin and trusting to the Lord to take care of the patient.

I have given both the repeated small doses and increasingly large doses a fair trial and found that I can, in most instances, produce best results by the progressively increasing dosage; and, this is what we should expect from a theoretical consideration of the action of the remedy. Tuberculin produces its beneficial effects in two ways; first, by stimulating the machinery of immunization to the production of more antibodies; and second, by causing a local hyperemia about the focus of infection which enables the antibodies to be applied more directly to the bacilli and which also stimulates the cells to the formation of fibrous tissue about the diseased foci. Examinations of the blood show that the agglutinins and other antibodies are produced in greater amounts after the larger doses although both large and small doses will increase the immune content of the blood. The treatment of local tuberculous ulcers shows that repeated small doses fail to produce hyperemia and that the progressively larger doses are necessary in order to maintain it about the focus of infection. Experience also shows that a condition of hypersensibility is more apt to occur when the small dose, administered at infrequent intervals, is employed. This is a very unfortunate condition from the standpoint of therapy and one which makes further use of tuberculin very difficult.

Whether or not hypersensibility will develop depends very largely, according to my observations, on getting the patient started right. It is a well-established principle in experimental immunization that small doses of protein cause a hypersensibility to further doses of the same protein, while larger doses cause an immunity to it. The time between doses is also an important factor. The space of time between the first few doses of tuberculin should not be long. Many men, who are unaware of these principles, in their attempt to be extremely cautious, give an initial minute dose and then delay for a number of days before giving another. This is not conservatism, it is error; and it shows a failure to comprehend the principles of immunity. The only conservatism in tuberculin therapy is the employment of the proper dose both as to size and time. No matter what preparation I use, I begin with a dose that I feel will not produce symptoms. This dose is determined by the condition of the patient and the nature of the lesion. I use a smaller dose in an active case than in a quiescent one, and in an early case than an advanced one. I also use a smaller dose in a young child than I do in an adult; in a nervous patient than in a phlegmatic patient; also when the infection involves a delicate organ such as the eye in contrast with the involvement in the lung. After the initial dose has been given I proceed with short intervals between doses, one day usually between the first and second, and one or two days between the second and third and two or three between the third and fourth, according to the patient, the lesion, the effect of the preceding dose and the preparation employed. I increase the dose rapidly, making each successive dose two, five or ten times the preceding one, according to the remedy and conditions present, until four or five doses have been given. After that I am guided entirely by my opinion of the case and the manner in which the patient reacts to the remedy. This method has proved very satisfactory inasmuch as it almost guarantees freedom from hypersensibility and troublesome reactions. I have not had a case of pronounced hypersensibility develop among my patients for the past four years. With my method of further carrying on the treatment, which consists in making each successive dose depend on the action of the preceding one, a temperature reaction of more than a fraction of a degree is almost unknown in my practice. Each dose of tuberculin is followed by what might be called a period of increased immunity or decreased sensibility to the remedy. The length of this period varies according to the dose employed; and the time of its appearance depends on the size of the dose, appearing later and lasting longer after large doses than after small ones. Within this period it is safe to repeat or increase the dose. Earlier will almost surely produce a reaction and later is apt to do so, especially if the dose is increased. An appreciation of this fact will greatly facilitate the employment of tuberculin.

The length of time that a patient should be treated with large doses of tuberculin is a very important question. After a large dose has been attained should this dose be repeated time after time? I am of the opinion that, as a rule, it should not. I am guided in this, however, by the character of the process. I use repeated large doses for a time in incipient or chronic inactive cases; but rarely in active, especially chronic active ones. I have found it best to have at my command several preparations of tuberculin. I usually run up to a high dosage on one and then drop back to the initial dose of another preparation and gradually work up again. This method has several advantages which commend it. In the first place, different preparations act somewhat differently and it is well to give the patient the benefit of their different actions. Again—and this I deem very important—it is not well to keep up a maximum focal stimulation such as is caused by the larger doses, for a long time. It has been shown, as mentioned above, that both large and small doses stimulate the machinery of immunization to the formation of antibodies; and that the larger doses cause the more pronounced focal reactions. Therefore, I deem it wise to carry my patient up to a large dose, and then if the case is an incipient one or a chronic inactive one, repeat it several times before changing to another preparation; but, if it is an active case, especially a chronic active one, not to repeat it, or at least not more than once or twice. The term "large dose" must be considered relative. A large dose for one patient is a small dose for another. I mean by a large dose, the one which my judgment tells me is large for the given patient, although I have never found it necessary to exceed the limit of dosage as usually laid down for the various preparations.

One of the greatest difficulties in the therapeutic administration of tuberculin, granting that one understands the pathology of tuberculosis, the nature and theory of the action of tuberculin and is capable of making a fairly accurate examination of the chest, is to be able to intelligently interpret the temperature curve of the patient. There are varied causes for the general temperature curves and so many factors which enter into the daily variations in the curve that one is often at a complete loss to interpret them. It is essential to know first that the curve of the tuberculous temperature is not uniform. It runs in waves. It is up for a time and then down for a time until the patient finally attains an arrest in the activity of the disease. It shows this same character whether the patient is taking tuberculin or not. The curve is modified by physical exertion, the mental state of the patient, the condition of the digestive system, atmospheric changes, complications and many other conditions. Unless this is understood it is impossible to carry out tuberculin treatment intelligently except in cases absolutely free from fever. Some physicians take each of these rises in temperature for auto-inoculations; others think that every time the temperature rises it is due to the tuberculin used therapeutically. Such interpretations prevent the proper administration of tuberculin and are based on error. It is necessary to be cautious, but unless one is careful to inquire into the causes of these temporary variations in the temperature curve and to assign to them their rightful causes, or at least not to allow them to interfere with the proper increase and spacing of dosage, no progress can be made at all in the therapeutic application of tuberculin to a given patient. Patients are sure to have rises in temperature every now and then from some of the innumerable causes mentioned above. When doses of tuberculin are being given every second to fifth or sixth day, the probabilities are that some of these rises will come on the day of the dose. It is most natural, under the circumstances, to interpret them wrongly as being caused by the remedy. Unless one recognizes this probability and uses care in his interpretation, he cannot use tuberculin to advantage. I am positive that in our endeavor to be cautious we often ascribe to tuberculin many rises in temperature that are not due to it at all.

This brings us to the discussion of the question as to whether or not tuberculin should be used therapeutically when fever is present. My extended experience in the use of the remedy permits me to say that tuberculin is of decided advantage to the patient suffering from fever. I am not unmindful of the fact, however, that fever patients are extremely difficult to treat and that they should not be treated except by those who are thoroughly conversant with tuberculin and its therapeutic employment. The variations in the temperature curve of fever patients are much more difficult to interpret than those in the usual non-febrile patients.

The action of tuberculin is to increase the patient's immune bodies and to favor healing by causing a local hyperemia about the focus of infection as mentioned above. Tuberculosis has a constant tendency to spread; in fact, this is the factor about it which destroys the patient. At no time is it more apt to spread than when the patient is suffering from fever, when activity is present and the tissues are breaking down. If there is ever a time when the tissues should be fortified and the body fluids should be surcharged with antibodies in order to save the patient, it is while this is occurring.

The objections raised against its use during fever are not well founded. They are based on a supposition that the fever is an indication that tuberculin is already circulating in the tissues in large amounts; but this is not true. As mentioned elsewhere,[1] if it were true, all local tuberculous ulcers would show constant reaction during fever, which they do not; and as a result of the constant focal reaction the tissues would break down and we should have a generalized softening of all tuberculous foci whenever a chronic temperature exists, which also does not occur. Further evidence of the fact that the body is not surcharged with tuberculin is afforded by the observation that visible tuberculous foci which do not show reactions even when fever is present can be made to react promptly by the administration of tuberculin.

Thus we see that the necessity for the administration of tuberculin is even greater when fever is present than when it is not present; and that the supposed argument which has been put forth as a contra-indication is not valid. To be sure, skill is required to treat patients with fever; but it is certainly gratifying to see portions of lungs clear and tuberculous complications improve while the fever is present; and see these patients come out of a siege of fever which has lasted for weeks or even months without the disease having spread to new tissues and with tissues which have been primarily involved cleared up. The disappointments in the results of tuberculin treatment which I have heard expressed by physicians seem to be due to three causes: faulty technic, a failure to recognize the limitations of tuberculin, and an inability to observe the beneficial changes which the remedy produces with sufficient accuracy.

I have already discussed the more important errors in technic although I have not mentioned the many little details such as those connected with making dilutions, cleansing the syringe, measuring out the dose, and administering it, that contribute so much to successful therapy, and which, when disregarded, mean almost certain failure. These, while very important, are too elementary for discussion at this time.

It is as important to know what a remedy cannot do as to know what it can do. If the limitations of tuberculin were thoroughly understood much disappointment would be avoided. That tuberculosis, after it extends beyond the initial stage, is always a complex condition, should always be borne in mind.

Tuberculin has only a specific action against the tubercle bacillus and its toxins. It cannot cure mixed infection nor can it prevent the deleterious effects resulting from enzymes and the products of their action. It can aid in the healing of tuberculosis; but it cannot be expected to exert a specific action on necrotic tissue. It cannot cure consumption although it can aid in curing the more recent lesions even in advanced cases, and it can aid in keeping the blood reinforced with antibodies, thus helping to prevent the disease from spreading. It cannot restore tissue when once destroyed, nor can it overcome the effects produced by the disease. Yet all of these impossible things seem to be expected of it.

Much of the value of tuberculin cannot be observed. We cannot see its action in stimulating the machinery of immunization and protecting the body from new infections occurring from the bacilli which escape from old foci. Unless examinations are made far more carefully than usual we cannot determine the healing of the areas of slighter infections in the lung. The changes are slow, as can readily be seen by the fact that it requires on an average six months for an early case of tuberculosis to heal. Only the most careful expert examinations can determine the changes which occur from month to month. Unfortunately few men have been schooled in making examinations with sufficient accuracy to be able to determine this; consequently, it is necessary in the treatment of this disease to take a great deal by faith. Physicians must not expect great changes to occur in a short time, but must be patient and remember that the changes which would occur in an ordinary acute illness in a few days or few weeks require many weeks or many months in this disease.

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[1] Pottenger, F. M.: A Study of Fever in Tuberculosis, with Reference to Its Causation and Treatment, The Journal A. M. A., 1911; yet to be published.

ABSTRACT OF DISCUSSION

DR. WALTER BREM, Los Angeles: Von Pirquet in his recent article on "Allergy" in the *Archives of Internal Medicine* has discussed the subject of reactivity to tuberculin; he thinks that altered reactivity of the tissues to tuberculin is due to the presence of antibodies, which so act on tuberculin as to convert it into a toxic body. When an apparent tolerance for tuberculin is developed by the administration of gradually increased doses, von Pirquet thinks that what takes place is a decrease in the number of antibodies. If that view is correct, I think that one should be very careful how one creates this apparent tolerance for tuberculin, and that it would be desirable to graduate therapeutic doses according to the degree of reactivity so that the reactivity would not be altered by a decrease of the naturally developed antibodies. White of Pittsburgh has introduced a method of graduating doses of tuberculin by which he thinks that he can avoid altering naturally developed reactivity. He finds first the quantity of tuberculin that in the cutaneous test will produce a "minimal reaction," a papule 4 to 6 mm. in diameter, and then he injects that quantity subcutaneously. If, for example, .01 c.c. of a 1 per cent. solution (O. T.) produces a papule 4 mm. in diameter, then he uses an equal quantity, 0.1 mg., for the subcutaneous dose. By using a careful technic in his cutaneous test he finds a definite quantitative relation between the skin reaction and the reactivity when tested subcutaneously. A dose producing in the cutaneous test a papule 4 mm. in diameter will, when given subcutaneously, produce an area of redness 4 to 6 cm. in diameter, and such a dose never produces any general reaction. Furthermore, if the doses are spaced ten days apart no alteration of the naturally acquired reactivity is brought about. White's method is interesting in connection with the theoretical considerations of von Pirquet. The object aimed at by White is logical if von Pirquet's ideas are correct. In view of this and also in view of the fact that White has reported excellent results from the use of his method, it seems to me that the method is worthy of careful trial.

DR. JOHN RITTER, Chicago: Using tuberculin daily in practice in ambulatory cases I am very much impressed with what Dr. Pottenger has told us just now and feel assured that tuberculin finds its best application in the sanatorium. Ambulatory cases will not give such good results. Tuberculin is a double-edged sword. Tuberculin should only be used by those who are familiar with it. The more I use tuberculin the more I am convinced that it should be used in the sanatorium and only to a limited extent in ambulatory cases. One cannot watch ambulatory patients as closely as those in a sanatorium. The average physician looks on tuberculin as a specific. Tuberculin is a specific only in effect. It is not a specific in the degree that mercury is a specific in syphilis, but we get definite results in tuberculosis with tuberculin. It is not a curative measure, it only assists us in the cure of tuberculosis. This paper by Dr. Pottenger should be taken home and read again and again and then tuberculin should be used only when the practitioner is familiar with the cases, or he should send them to a sanatarium where they will be under careful observation at all times.

DR. EDWARD VON ADELUNG, Oakland, Cal.: Probably our principal interest centers on the question which covers the whole discussion, namely, Is tuberculin of value at all? We all know that some people do not feel that tuberculin is of any value, but I hasten to add that I am on Dr. Pottenger's side in feeling that tuberculin is a valuable addition to the usual hygienic, dietetic and climatic treatment of this disease. There was a time when I was in doubt. I was convinced only by clinical evidence, not by theoretical explanations. By clinical experience I do not refer alone to my own experience, which was of some satisfaction, but to the reports of men like Bonney, Trudeau, Baldwin, Pottenger and a number of men on the other side of the Atlantic, who stated that they had given patients the benefit of all treatment without tuberculin, had seen them attain a stationary degree of improvement and had then found that by giving tuberculin in addition, further improvement was obtained. This to my mind was convincing. We are pretty well convinced that when we cure tuberculosis we do it through cell resistance to the bacillus and its toxins. Hygiene and diet do it in that way. Tuberculin acts in the same way. In our attempt to measure the action of tuberculin we seized on Wright's demonstration as a gauge; but we found it to be inadequate. We have fallen back on the clinical valuation and we still rely on this method of gauging our treatment. We cannot state with mathematical accuracy the proper dosage or the number of days between doses. But as well pointed out by Dr. Pottenger these are matters of individualization and cannot be argued out. I should congratulate Dr. Pottenger when he says that he no longer—or exceedingly rarely—gets reactions. Here our experiences have differed somewhat. I find from what he says to-day that I am using tuberculin in practically the same way as he is, except that I try to find the maximum dose of tuberculin that I can give to each individual at fixed intervals of time, the theory being that I am using a stimulant to tissue resistance, just as we use strychnin, or digitalis, or atropin in appropriate conditions, realizing that we use these stimulants within their physiologic limits. And so I have been using tuberculin to the physiologic limit. I sometimes get a reaction; rarely a reaction of any importance; usually very slight. Then I know that I have reached, at least for some weeks, my limit of dosage for that patient. I have also found, as has Dr. Pottenger, that a change of brand of tuberculin is of value, the stimulation on changing is noticeable. The use of tuberculin during fever is a field that I have not trodden on. I have usually regarded a continued fever in tuberculosis as the result of a toxin and supposedly the toxin from the tubercle bacillus, or tuberculin, and hence contraindicating the use of tuberculin. I do recall now one patient with fever, who appeared to me to be fully saturated with toxin, whom I agreed to treat with tuberculin only at his pleading—an indigent who had been sent to the county hospital and came back and begged me, in a moribund condition, as I thought, to give him tuberculin. I did. His is one case which has opened my eyes to the fact that many hopeless-appearing patients can be helped. This man improved in many ways, including weight, appetite and strength and is now walking about the streets and earning a living. He had no treatment other than hygienic and dietetic, except the addition of tuberculin. I presume that bears out the contention that tuberculin has its use in fever conditions.

DR. W. C. VOORSANGER, San Francisco: I would like Dr. Pottenger to explain his position on the prophylaxis of tuberculosis and how far it may be effected by tuberculin therapy, i. e., tuberculin injections. By that I mean that, supposing a case of tuberculosis in the prebacillary stage, if you like, or supposing a case in which we only have the bronchial glands tuberculous—a glandular tuberculosis in which there are no actual symptoms—I would like to know exactly his position in the administration of tuberculin in these cases and how long he would give tuberculin and at what stage he would stop. In regard to the injection of tuberculin, I believe that the great difficulty which most people experience is that they are looking for an immediate, definite result and I do not believe it can be had. When one administers digitalis in a case of cardiac trouble, if the pulse is about normal and the patient about well, one does not go on administering digitalis two or three years longer. If the patient has another break in compensation, one administers digitalis again. I believe one should look for the symptomatic result. Dr. von Adelung spoke of using tuberculin up to its physiologic dose. I do not exactly understand what is meant by that. I do not believe we should use tuberculin any further than the patient can tolerate it, and that when we receive a symptomatic result from a dose, and the patient is doing well, then that dose should be maximum. I do not believe the same maximum dose for every patient is possible. In starting I use 1/20,000 mg. of bovine tuberculin. I always start with that and I have no maximum. When, after several months, a patient is doing well on a certain dose, this should be the maximum dose. I never could see any reason for increasing a dose to a definite maximum. I believe that each patient should have a different maximum. When the patient reaches the point where he can tolerate a certain dose of tuberculin, and do well, that should be the place to stop. In other words, one must individualize with tuberculous patients in the same manner as with patients afflicted with any other disease.

Dr. Charles O. Probst, Columbus, O.: I wish to emphasize the danger of improper use of tuberculin. A large producer of tuberculin, a physician, a skilled bacteriologist, a tuberculous subject who has taken tuberculin in its treatment, told me that it was with a great deal of trepidation that he placed it on the general market. He feared that if used widely it might do more harm than good. For the average physician, and especially those who have not had laboratory training, the mere making up of dilutions is a matter of difficulty. To meet that the producers are sending out doses in serials to be taken so many days apart. If what Dr. Pottenger tells us is correct as to the great care needed in the administration of tuberculin, I can see some danger in putting up tuberculin in that shape for the use of the general practitioner.

Dr. Max Rothschild, San Francisco: The necessity of individualizing in every case is undoubtedly of the greatest importance and I am in harmony with Dr. Hare in condemning the houses which put tuberculin on the market in serial dilutions and induce the general practitioner to treat tuberculosis according to a schedule. In regard to the treatment of fever I must say that I take a different standpoint from Dr. Pottenger. Before I try to give my patients, who have fever, tuberculin, I always put them to bed for at least four to six weeks and see if the fever does not go down with absolute rest in bed. It usually does and I have found that if the fever does not disappear with the absolute rest in bed after four to six weeks it very rarely disappears under the tuberculin treatment. The question whether it is always better to send patients with tuberculosis to sanatoriums is difficult to decide, and a very important one. There is no doubt that the patient who can afford it should go to a sanatorium, but there are hundreds of poor patients who haven't the money to do this, and the public institutions for the special treatment of tuberculosis are so few that only a small number of the tuberculous poor can be accommodated. Now, what is going to become of these? Are they going to be deprived of a treatment which most of us consider a very important one, and one which might save their lives? In a paper which I read about a year ago in Nevada, at the state medical meeting, I took up this point. I believe that every practitioner should learn how to use tuberculin. A good physician knows how to treat a difficult case of pneumonia and he knows how to treat a difficult case of typhoid fever. These diseases, like many others, need a good deal of knowledge and circumspection in order to be treated properly and successfully. Now, why should a general practitioner, who knows how to treat such other diseases well and correctly, not learn how to use tuberculin? It should be made a part of the physician's education, so many a poor tuberculous patient could be properly treated and perhaps saved, whose circumstances would make it otherwise impossible for him to receive the benefits of the tuberculin treatment in a sanatorium.

Dr. J. S. Trewhella, Los Angeles: Should we simply increase the dose of tuberculin until we get the reaction? What are the symptoms from a minimum reaction?

Dr. J. E. Pottenger, Monrovia, Cal.: I would like to speak of the possible value of the laboratory in aiding in the interpretation of temperature. As there is always more or less intoxication from stomach and bowel disturbance in these cases its detection by laboratory methods may aid in the interpretation of the temperature curve.

Recently I had two patients one of whom, with a very irregular temperature, was known to have considerable disturbance of this kind. The other was undergoing an acute extension of the disease in the lung, with atypical temperature. From daily twenty-four-hour quantities of urine the indican was determined quantitatively. From twenty-four-hour specimens of sputum the total amount of solid material was determined. White blood-counts were made each day. In the first case I found that the maximum indican elimination corresponded fairly with the rise in temperature, while the blood-counts and solid matter in the sputum remained approximately the same. In the second case there was a pronounced increase in the amount of solid matter in the sputum, while the indican and white blood-cells remained practically the same. The conclusion was that in the first case we were dealing largely with an atypical temperature due to intestinal intoxication. Such data may aid in clearing up doubt as to the effects of our tuberculin inoculations.

Dr. Mazyck P. Ravenel, Madison, Wis.: While agreeing heartily with what Dr. Probst has said, I wish to put in a plea for the commercial houses that put out those serial dilutions of tuberculin. We all recognize the dangers of careless or faulty dosage, and these houses are giving to the physician accurately measured doses. Dr. Lawrason Brown, who has had about the largest experience in the United States, has published a table of dilutions, and only the other day Dr. Kress of Los Angeles published a similar table in The Journal of the American Medical Association (April 29, 1911). I presume there are very few men in the United States who have made more tuberculin than myself, and yet to this day I never make dilutions without realizing that I have an exacting and difficult job on hand. Those firms that are putting out the serial dilutions are putting into the hands of the general practitioner the proper dosage, properly prepared and in an absolutely safe way.

The man who does not know when he is giving the wrong dose and does not recognize hypersensibility, has no business fooling with tuberculin at all. To condemn tuberculin because some men give it wrongly is as unfair as to condemn strychnin and morphin because poisonous doses are sometimes given.

Dr. Robert A. Peers, Colfax, Cal.: Serial dilutions commence with too high a dose. No. 1 in all serial dilutions contains 0.01 part to the cubic centimeter; the commencing dose should be 0.001. I have had prepared three dilutions, one in which there is 0.001 to a cubic centimeter, one in which there is 0.0001 and one in which there is 0.00001 to the cubic centimeter, and then I commence either with a 0.00001 mg., which would be a tenth of 0.0001, or else I give 0.000001 as the commencing dose. I believe there are some who start with smaller doses than that, but I think it is wrong for anyone who is using tuberculin to commence in all cases with serial dilution No. 1, because they will find that they will get a great many reactions. I am not sure that I understood completely Dr. Pottenger's attitude in regard to the administration of tuberculin in patients with fever. For two years I have not been giving tuberculin to patients with elevated temperature, except in rare instances. I do not believe that any man should advocate the use of tuberculin in patients with a temperature above 100 F. In patients who are running a temperature of between 99 and 100 F. I think there is good ground for its use in so far as we know about tuberculin. I believe we know very little about tuberculin yet. I believe very much in the use of tuberculin. If I had tuberculosis myself and was not running a temperature I would want tuberculin used and I would want somebody to use it who had experience in it. Perhaps Dr. Pottenger does not advocate it in temperatures above 100 F.; but if he does advocate it he cannot impress too strongly on the members of the profession that they must use the greatest caution in using it.

Dr. Gerald B. Webb, Colorado Springs, Colo.: I am a great believer in the value of tuberculin. I perhaps use smaller amounts. While listening to this discussion I wondered if Bernard Shaw had been present at a similar one before writing his "Doctor's Dilemma." Before antitoxin was introduced the treatment of diphtheria covered many pages in the text-books. It is evident from the discussions that we have no specific yet for tuberculosis. Tuberculin, after all, is a preparation of dead germs and little immunity can be obtained in tuberculosis without the use of the living germ. At the International Congress on Tuberculosis, 1908, I suggested a method of inoculating the living germ. I have had some fifty volunteers up to date. I have done no harm and I have felt the results were better than with tuberculin. I have fully satisfied myself as to its safety on guinea-pigs, rabbits and monkeys. The inoculation of the living germ frequently brings down the temperature, as Dr. Pottenger has found with tuberculin. Practically the whole human race becomes infected with the tubercle bacilli and I believe we can prevent this infection to a large degree by the inoculation of the living tubercle bacillus. We have been able to inoculate young monkeys with safety with enough virulent human tubercle bacilli to kill 20,000 guinea-pigs. By this method I have already safely inoculated two children.

Dr. F. M. Pottenger, Monrovia, Cal.: According to von Pirquet, as suggested by Dr. Brem, when large doses of tuberculin are administered, the antibodies should all be used up and the skin test should prove negative. I have tested numbers of patients who were receiving large doses of tuberculin and they reacted positively without exception. We must not let theory take the place of clinical observation. Whoever administers tuberculin should know the definite quantity of tuberculin in each dose, instead of so many drops of such and such a dilution. No man has any more right to undertake the use of tuberculin without first studying tuberculin and tuberculosis than he has to do major surgery without first studying his anatomy and witnessing operations. While the sanatorium offers the best conditions for the use of tuberculin, I do not agree with Dr. Ritter that it should be used only in sanatoriums. I treat many poor people in my city offices, who are compelled to work while getting well. My results are not so good as those in the sanatorium and the time of treatment is greatly prolonged, yet I am saving many patients who could otherwise not be saved. Those who are using tuberculin intelligently and not expecting it to remove all the results of consumption, put in new lungs, remove cavities and restore hearts and stomachs that have been injured, but who are expecting it to fortify the body against the spread of the disease and help rid the body of pure tuberculous foci; those who are administering it, not by so many drops of this or that dilution once a week, or once in two weeks, regardless of the condition of the patient, but by giving the right dose at the right time, are unanimous in their opinion that tuberculin is of value. The cure of tuberculosis depends on specific stimulation, on the one hand, and the reaction of the body cells on the other; consequently tuberculin should be reinforced by every known measure that will build up the patient and improve his resisting power. Clinical observations are ample for measuring dosage. The early signs of reaction will be detected long before the point of fever reaction is reached. Nervousness, depression, malaise, aching, increased cough and expectoration, nearly always occur on doses short of those which will produce fever. I would not recommend the wholesale use of tuberculin in fever by any means, but I would recommend that those who know tuberculosis and who understand fully the use of tuberculin, try it in fever cases.

Regarding the treatment of tuberculosis before the bacillary stage, as suggested by Dr. Voorsanger, I believe the future cure of tuberculosis is going to be the treatment of infected children. It is wrong to allow these early unhealed infections to become clinical tuberculosis.

As has been suggested I am of the opinion that there should be some man in every community who is capable of using tuberculin in the treatment of tuberculosis. The men who only have one or two patients a year to treat should not think of employing it. They do not have sufficient experience to use it correctly.

My experience with fever cases is different from Dr. Rothschild's. Unfortunately I do not find that the temperature is reduced in five or six weeks. The pathology of these cases makes it impossible for the fever to be of short duration. Very often I find that I can hasten the fall in temperature by tuberculin.

I congratulate Dr. Webb on his most valuable and interesting contribution on immunity in tuberculosis. To my mind he has struck the natural process that goes on in the child from the time of his birth.

Epilepsy.—Celsus, in describing epilepsy, used a term which became immortal. He called it "morbus major." The French translated this into their own inimitable language and gave a name which is to-day the common description of the condition *grand mal*, because the disease was terrifying and great and grand.—E. L. Hunt in *Medical Record.*

THE PRODUCTION OF IMMUNITY IN TUBERCULOSIS BY INTRAVENOUS INJECTIONS OF TUBERCULIN *

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In the treatment of no other disease have there been such strides made in the past few years as in that of tuberculosis. From time immemorial this disease has attracted the best attention of the medical profession, and various have been the remedies and measures proposed for the alleviation and cure of the great white plague, which at the present time is depopulating this good old world of ours at the rate of 1,000,000 a year, and causing a loss to the nation of many millions in money.

Immunity against any disease is based on the fact that the body in the presence of infection and its products has the power to elaborate specific substances—antibodies—that neutralize the toxic microbic product, and promote the destruction of the infectious organisms. We are all familiar with the natural immunity produced after certain diseases, such as small-pox, scarlet fever, yellow fever, cholera, and so on. Metchnikoff says that the persistence of immunity that develops after infectious diseases is due to a permanent increase in the phagocytic power of leukocytes. According to Ehrlich's side-chain theory, which has been adopted as the best explanation of the manner in which immunity and the changes in the cells are produced, toxins are harmful only when they are able to unite chemically with certain cellular bodies—receptors; otherwise the cells are immune to the action of the toxins; that is, when this union cannot take place.

Antibodies in the blood are protective and curative because they unite with the haptophore group of the toxic molecule, and thus prevent the latter from uniting with cells and causing morbid changes in structures and functions (Ludvig Hektoen).[1] The great majority of mankind must have in some degree a natural immunity against tuberculosis. If it were not so the race would long ago have become extinct, for statistics show that 20 per cent. of all adults die of this disease, and 70 to 90 per cent. of all autopsies show evidences of healed or healing tuberculous foci. Our aim in the treatment of the disease is to reproduce this immunity in those cases in which Nature seems to have failed. When tuberculin was first put on the market by Koch it was hailed as a specific, was used in all stages of the disease and by inexperienced men, which was against his advice; with the inevitable result, as in the case of all so-called specifics, that it received a set-back that will take years to overcome. Owing to the careful investigations and experiments of some of the ablest members of our profession, interest has been revived in tuberculin therapy, and at the present time it is receiving a great deal of attention as an aid in the production of immunity in tuberculosis.

Judging from the results obtained up to the present time, there is apparently little difference between the actions of the various tuberculins when properly given, as all probably contain the specific proteid, the chemistry of which is still unknown. Some observers report beneficial results with the Old Tuberculin, some with the Bacillen Emulsion, and others with the watery extract. As Trudeau of Saranac Lake has pointed out, it is not the kind of tuberculin that counts, as much as it is the physician giving it; therefore the personal equation of the physician becomes a highly important factor. Sahli lays proper stress on this point when he says: "The qualifications of the physician who administers it are certainly of more importance in most cases than the kind of tuberculin."

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

[1] Hektoen, Ludvig: General Principles of Serum Therapy in Practical Treatment by Musser and Kelly.

The outcome of all the work done so far along these lines has been to establish the fact that tuberculins and their products are valuable aids in the production of immunity in tuberculous lesions. The earlier investigators attributed the curative action of tuberculin to the formation of agglutinins, and similar protective substances, by the cells of the tuberculous when stimulated by tuberculin.

Von Pirquet[2] states that the tuberculin reaction is dependent on the presence of antibodies. In a person who has no antibodies no reaction can be elicited; therefore normal individuals do not react. Neither do individuals in advanced stages of tuberculosis, for the reason that their antibodies have been used up in the fight of the body against the disease.

Hamburger[3] points out that tuberculosis is acquired almost wholly in infancy and early childhood, and that, therefore, adults either are suffering from tuberculosis acquired in early childhood or possess a latent focus which renders them immune to a further infection. The prophylactic employment of tuberculin in infancy and childhood, therefore, should constitute one of its most valuable uses, considering the fearful death-roll caused by this disease among the little ones.

Maragliano[4] says that "Tubercle bacilli, living or dead, are able by their toxins to produce in the organism, specific protective bodies, antitoxins, lysins, bacteriolytic substances and agglutinins. The production of these protective bodies can be brought about by the introduction of tuberculin into the patient."

Trudeau says: "The production of tuberculin-immunity is capable of favorably influencing the course of chronic tuberculosis, of prolonging life, and in many cases of aborting a commencing infection, or extinguishing the smoldering fires of a chronic infection."

Sahli (1896) believes that tuberculin is not merely a specific, but like digitalis in cardiac disease, is a functional therapeutic means, which acts in a definite way on the toxin-susceptibility of the organism. In the ordinary course of the disease, tuberculin is formed so gradually in the patient's system that the organism is rarely stimulated to the formation of any antibodies. In the tuberculin treatment a large amount is thrown into the circulation at once, and so permits the bacteriolytic properties of the tissues to exert themselves—it permits an auto-immunization to take place. Now, if the dose injected is too large, the cells are so affected, with a body already overloaded with toxins, that they can no longer respond to stimulation, and this explains the failure of many patients in advanced stages to react to tuberculin.

Leukocytosis takes place in almost every disease of bacterial origin except tuberculosis. Metchnikoff, in his work on the phagocytic action of the white cells, concluded that these bodies played the part of an armed force, ready to combat any invasion. Buchner followed with the observation that the blood-serum, exclusive of the cellular elements, could destroy disease germs. Finally Vaughan of Ann Arbor announced that by the administration of substances containing nucleinic acid, the number and activity of the leukocytes could be increased.

Having, I think, fully explained that the protective substances which cause immunity can be produced by the injection of tuberculin, and are aided by the administration of other remedies that increase leukocytosis, I shall briefly compare the various methods of administration.

The subcutaneous method is the one commonly used by the profession, and at the different sanatoriums at the present time. I cannot see that it has any advantages when compared with the intravenous method. It is slower in action, painful to the majority of patients, and is often the cause of the production of local abscesses.

The intraperitoneal method has been used by some, and Maragliano has used an intrapulmonary method with some benefit. Tuberculin has also been used by the mouth, with doubtful results, some observers stating that antitoxic serum cannot be absorbed from any intact mucous membrane, and others to the contrary, that a child can be rendered immune by feeding it the products of the tubercle bacilli. I have had no experience with these methods, having used the subcutaneous, and, for the past three years, only the intravenous. Koch, Denys and Rothschild have used and advocated the intravenous method for years, but the advantages of this method over all others have not received the attention they deserve. It is absolutely painless, avoids the danger of abscess formation, allows the use of smaller doses, and gives quicker results than by any other method. It is being used in this way by Dr. Max Rothschild at the California Sanatorium at Belmont, Cal., and at the Cottage Sanatorium at Needles, and with marked success at each institution.

Ludvig Hektoen[1] says:

> The fact that intravenous injections immediately give a far greater concentration of antibody in the blood, and hence in the lymph also, than is ever obtained by the gradual absorption from the subcutaneous tissue, is a strong point in favor of direct injection into the blood. . . . According to Berghard, the curative value of antidiphtheritic serum for guinea-pigs on direct injection into the blood, is 500 times greater than on subcutaneous injection, and so far no dangerous symptoms have developed from these intravenous injections.

Also, further, in the same article, Hektoen, quoting Friedberger and Doermer, says: "Small quantities of bacteria may cause a greater output of specific antibody on intravenous than on subcutaneous injection."

As an experiment I took six guinea-pigs of the same age and weight that had previously been infected with the disease from the same source, gave three of them subcutaneous injections of O. T., and the other three intravenous injections of the same preparation, only lessening the dose one-third. I found that the three which received the intravenous injections reacted in from four to eight hours sooner than the three which received the subcutaneous injections. This was repeated several times with the same results. Changing the animals around, so that the three which received the intravenous injections at first, now received the subcutaneous, and *vice versa*, produced the same results, showing that I had absolute control of the reactions and proving that the intravenous method was the best way to give the remedy to get quick results. This has been further borne out by clinical results on patients.

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[2] Von Pirquet: Wien. klin. Wchnschr., Nov. 17, 1905.

[3] Hamburger: Wien. klin. Wchnschr., July 16, 1908.

[4] Maragliano: Die specifische Therapie der Tuberkulose, Tr. Internat. Cong., 1908.

The true fundamental principle, underlying all therapeutic measures in the effort to secure the arrest of the tuberculous infection, is that of conservation of strength and augmenting the inherent resisting power of the patient. The physician should study each case separately and all the time, because the susceptibility to tuberculin varies in different patients, as well as in the same patient at different times. As Hammer[5] says: "As a first condition for its harmless use, it is certainly necessary that the physician who desires to add it to his therapeutic equipment must be experienced enough to be able to judge even the slightest sign of reaction."

The most important rule to remember is that too little never injures, while too much may result in a strong reaction, which is to be avoided. Those who have made use of the subcutaneous method of administration know that at times, in spite of all precautions used, an abscess will occur, especially when the B. E. preparations are used; and everyone knows what effect this has on the mind of the patient as to the advisability of continuing the treatment. These bad effects can be avoided by using the intravenous method and, as stated before, results will be quicker.

Koch pointed out that success would be secured in the application of the treatment in the earliest stages of the disease. We go further to-day and say that the remedy should be administered before any of the ordinary symptoms of the disease manifest themselves. After three years' use of tuberculin, I can say without hesitation that treatment can be carried out in all cases, even in the most advanced, when there is reacting power, without danger. I have never seen any harm result, in spite of the fact that I have not picked my cases for treatment, but have taken them in all stages of the disease. On the contrary, I have found under the use of tuberculin a hard, irritating cough easing up, a tenacious sputum becoming thinner and easier to raise, and the appetite increasing, in cases that were hopeless for any marked improvement, and under such results it cannot be denied that the resisting power of the whole organism had been raised.

In giving tuberculin or any other preparation intravenously, great care is necessary that absolute asepsis is secured, that the solutions used are freshly made and are sterile, and that the needle and syringe are thoroughly sterilized. I prefer and use a Sub-Q Tuberculin syringe with a 27¾ gauged needle. The syringe is graduated to 100 parts and contains 1 c.c.

As to the technic of the injection, selecting as a site the veins in the hollow of the elbow, I have the patient hold the arm parallel to the body, and open and close the hand rapidly for a minute. This with the application of a rubber strap applied above the elbow by an assistant, makes the veins prominent and easy of access. Now I have the patient close the hand tightly, then I tighten the strap, wash the site thoroughly with alcohol, inject the solution slowly, and withdraw quickly, elevating the arm for a moment, loosening strap and opening hand, seal the puncture with collodion. No other dressing is required.

I use the O. T. and B. E. preparations and make my own solutions. I usually commence treatment, in a suitable case, with a dose of 1/10,000 to 1/1,000 mg. of tuberculin, drawing first into the syringe about 05 lines of the diluent, then the required amount of tuberculin, and again the diluent to about 15 or 20 lines, seeing that all air is expelled from the syringe. For a diluent I use a 15 per cent. solution of atoxyl. Care must be taken in the preparation of the atoxyl solutions, as the drug is very unstable and spoils rapidly. A yellowish color shows that chemical decomposition has taken place and the solution should be discarded; otherwise if used, there will be symptoms of arsenical poisoning. For the past year I have had it prepared for me with the addition of 4 minims of chloroform to the ounce of solution, which has the effect of preserving the solution for some time, and as I use only about 15 lines of the solution, or about ⅓ gr. of the salt, the amount of chloroform has no effect on the patient that I can see. Large amounts of phenol (carbolic acid) and its preparations are used as a preservative in antitoxin, and yet we never hear anything of its effects when used in this manner. Using small amounts of atoxyl, as I do, I have never had any of the bad results reported by others, such as atrophy of the optic nerve. I think that these deleterious effects are caused by using either too strong a solution or an impure salt. I have given thousands of injections without any bad effects. I have found that atoxyl is a powerful adjunct to tuberculin in producing phagocytosis, which is one of our aids in producing immunity. Dr. Ward of Philadelphia is advocating the intravenous use of nuclein for the same purpose in tuberculosis, and from his reports and others it looks as if we had another valuable aid at our command in the treatment of this disease. I have always relied on nuclein by the mouth in tuberculosis but have never used it intravenously. Atoxyl has been used with marked benefit in cases of pernicious anemia, and is especially lauded by Mendel of Essen.

The increase in dosage of tuberculin must be governed entirely by the signs of reaction, both local and systemic, and one reaction must have subsided before another treatment is given. Some of the symptoms of reaction are a slight rise of temperature, increased rate of the pulse and respiration, headache, aching of the limbs, increased cough and expectoration, loss of appetite, and so on. These symptoms will vary in intensity according to the case and the amount of tuberculin used. These, though they may be slight and seem insignificant, must be noted, and caution used before increasing the dose or even repeating it. As to the interval between injections, there should be a lapse of from three to seven days, depending on the case and susceptibility. The physician should individualize each patient so that he will be able to recognize any deviation from a normal condition, caused by the injection, because the recognition of the slightest sign of reaction will be his best protection against danger.

In order to secure the immunizing effect of tuberculin and its preparations it is not necessary, as we once thought, to give large enough doses to produce marked reactions, but just enough to keep below this reacting point. This will vary in each case and under different conditions in the same case, and must be watched carefully; hence the importance of individualizing. I believe in starting the patient on small doses and gradually increasing the dose until I reach the patient's tolerance. This will require from six months to two years or even longer in some cases. I have seen all symptoms disappear within three months in very early cases.

Toxin tolerance as a method of treatment has been strongly supported by Sahli, Denys and Trudeau. The former two look on toxin tolerance as the only object, while Trudeau believes that mild reactions are of benefit. If it is at all possible, I think it is best to avoid all marked reactions, and this can be learned by experience.

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[5] Hammer: Value and Practicability of the Use of Tuberculin, Tr. Internat. Cong., 1908.

Specific action consists in the production of a congestion more or less marked out, at the site of the infection —a congestion which can be demonstrated by examination, whenever the disease is superficial in the lung, or when the larynx is affected. Recognizing this congestion enables us sometimes to diagnose latent tuberculous foci when other symptoms are absent.

It is my plan in treating patients to put them to bed for at least a week prior to taking treatment, have the temperature taken every two hours and urine and sputum examined, so that the exact condition can be determined and the subsequent injection watched with greater accuracy. If there is no rise of temperature I advise the patient to rest for a few days to secure complete relaxation, and see to a thorough flushing of the system. These precautions enable us to estimate the size of the dose which is one of the most important parts of the treatment.

I regard the opsonic index as a test of accuracy, but impractical, because when a number are taking treatment it takes up too much valuable time. The technic is too delicate and the results so often so difficult to interpret, that there is little hope of its ever proving useful in establishing an early diagnosis, or in guiding us in the treatment, when we have the clinical signs to guide us without the aid of trained observers and special apparatus, which the taking of the index requires. I think that studies and investigations made by such observers and with such apparatus are important and essential for the improvement of the practical side of the subject, as demonstrating the active and comparative value of different preparations, as well as showing us that the products of the tubercle bacillus act in a truly specific manner, by inducing active antibacterial or antitoxic immunity. In active antibacterial immunization specific amboceptors for tubercle bacilli can readily be demonstrated in the blood-serum of treated patients by the hemolytic method of Gengou.

From my own experience, and watching the results of others, I consider that we have at our command in tuberculin and its preparations, when used intravenously, powerful remedies for good when used rightly, but capable of doing much harm when used wrongfully. Until we have a better method we must consider it of the greatest importance in the treatment of the disease, to bring about a more general use of the intravenous method of administration; I feel confident that once the physician has used it in this way and has found that he can secure the best of results with small doses, less reaction, less discomfort to his patient and likewise to himself, and absence of all pain and swelling, he will never use it any other way, and will simply wonder why he had not used it so before. To secure this end it will be necessary that every physician should acquaint himself with the method of employment, the dosage and the behavior of the remedy, and it goes without saying that he should have a more thorough knowledge of the disease in the early stages than the general practitioner has to-day.

I want to report the results secured in ninety-five patients treated by me in the last three years. Of these, forty-eight were incipient cases, thirty-two moderately advanced, and fifteen far advanced. Of all these patients, 80 per cent. had cough, 78 per cent. expectoration, 38 per cent. hemorrhage, 15 per cent. pleurisy, 35 per cent. dyspnea, 75 per cent. loss of appetite, 35 per cent. night sweats, 30 per cent. hoarseness, 5 per cent. involvement of the larynx, 90 per cent. fever, and 100 per cent. loss of weight. On their discharge, classified according to the National Association, in the progressive stage, or unimproved, there were thirteen, or 86.66 per cent., in the improved stage six, in the arrested stage, physical signs stationary or retrograding for at least three months, twenty-eight, or 87.5 per cent.; in the apparently cured, signs of healed lesions for one year under the ordinary conditions of life, forty-eight, or 100 per cent.

A word as to the danger of the production of thrombosis and embolism, which has been one of the strongest arguments of the subcutaneous advocates against the intravenous method, and the stumbling-block to so many who really wanted to use the intravenous injections. I will say that in my opinion this is purely imaginary, for if proper asepsis is used and the solutions are sterile there is absolutely no danger. I have never had any such trouble, though treating patients in all stages, nor have I heard of it happening to others when the proper care was taken. It is not tuberculin alone that is going to cure patients, but it is a combination of all methods, fresh air, proper nourishing food, abundance of sunshine, regulation of the habits, tuberculins and autogenous vaccines rightly used and at the right time, by experienced men, that will bring us to the time when we can safely say that we have at last conquered the disease.

But it is incumbent on us to gird our loins, take a fresh hold, educate the general practitioner, and then the layman, to the effect that tuberculosis can be cured, urge the necessity of getting them under treatment and in proper surroundings as quickly as possible, urge on our statesmen the necessity for the erection of state sanatoriums where the people of little means can have the best of care and treatment; also for the establishing of day camps for early cases, and for the open-air schools for afflicted children, which have been tried in the eastern states with such marked success.

I must condemn the action of some physicians who place a syringe and a bottle of tuberculin in the hands of their patients for them to use on themselves. I have had several of these cases fall into my hands. As Pottenger[6] says:

> Any man should be capable of using these remedies if he has sufficient intelligence and sufficient determination to acquire a knowledge of their action and the proper method of their use, and if he will familiarize himself thoroughly with tuberculosis. It is just as rational to put the surgeon's knife in the hands of a blindfolded physician, as to put these specific remedies in the hands of a man who does not understand both them and the disease to be treated by them.

As the author was referring to physicians, what must the danger be when laymen try to use it!

Some assert that meteorological conditions may be disregarded in the treatment of tuberculosis—that the climatic factor may be ignored in all cases. This is wrong. Bonney[7] says:

> The fact that individuals recover from incipient tuberculosis without climatic change is no more to be considered as an argument against the wisdom of its intelligent application in individual cases, than is the recovery without operation of a given patient with appendicitis to be considered a reflection on the general expedience of surgical interference.

As Dr. Knight says, "If weather conditions make no difference, why do patients improve at one season more than another?" as we all know is the case.

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[6] Pottenger: Pulmonary Tuberculosis, 1908, p. 206.

[7] Bonney: Pulmonary Tuberculosis and Its Complications, 1910.

Many of the effects of climate on the human system are well known, and there is no reason to suppose that the tuberculous patient is exempt from the ordinary laws of Nature in this respect. It is not so easy to live the outdoor life at rest or in activity in a place where fog and rain, snow and cold, stormy weather prevails, as it is in one where week after week passes without a cloud in the sky or a drop of rain fall. And what state in the Union has such a glorious climate as ours; what state has the combination of desert and valley, mountain and sea, giving us almost any altitude and kind of air we desire for the different classes of cases? And what state has men better versed in the diagnosis and treatment of this disease than we have here in California—such as Rothschild of San Francisco, Pottenger of Monrovia, Bridge, Barlow, Cole and Browning of Los Angeles, and many others who are doing such a noble work among us?

A word as to the physician himself, for, after all is said and done, as Dewey said of his gunners at Manila, "It is the man behind the gun that does the work." In the treatment of no other disease does the personal equation of the attending physician have such an important bearing. It is *the man* who administers the remedies who produces results. If he is capable of impressing his will and personality on his patients he can get the closest supervision of their lives. Cheerfulness in a patient aids in his recovery, for good spirits is the best medicine, and the sunshine of a smile can dissipate many a cloud. From the doctor should come the will, the interest, the cheerfulness and enthusiasm for the patients.

ABSTRACT OF DISCUSSION

Dr. Max Rothschild, San Francisco: The varied opinions of different authorities in regard to immunization and the divergent views of other authorities in regard to the effect of the different tuberculins show clearly that we are still in a condition of deplorable uncertainty in regard to immunization and treatment with tuberculins. Hypotheses and theories have been published, accepted, and condemned. Statistics have been given by which reliable authors have tried to prove that the use of tuberculins is misjudged; that the method has no merit whatever, and that just as good results have been achieved with proper dietetic, climatic and physical treatment. On the other hand, other authorities, just as reliable, show by their statistics that such results as theirs could be achieved only by the use of tuberculins. I am a strong believer in tuberculin. Carl Spengler and his followers claim wonderful results from their immunizing bodies; another school asserts that treatment with these bodies is ridiculous. If I had the time, I could bring up many other points in which the opinions of well-recognized authorities are directly opposed. We must admit that as yet we have only a little absolute knowledge of immunization, as well as of the way in which the different tuberculins act, and of the ultimate results. We know very well that we can produce immunity against certain poisons and toxins; but we do not definitely know where these immunizing bodies, or antibodies, or antitoxins, are to be found in the system. The theories of phagocytosis, opsonins, agglutinins, precipitins, etc., have all been very alluring and attractive, but they have helped our real knowledge very little. We know that we can produce immunity against tuberculins, but this immunization against tuberculins does not produce immunization against tuberculosis. This is a most important fact, which we are apt to overlook. For the administration of tuberculins, two methods exist at present. Koch's school endeavors to work the tuberculins up to large amounts. Sahli and his followers, on the other hand, try to avoid all reaction, and use small amounts of tuberculins. The latter method gives good results, is not dangerous, is a better way for the practitioner, and for ambulatory treatment. I have used it for a number of years; in fact, I had advocated it quite a while before Sahli's first publication appeared. I hope not to seem immodest if I mention my first paper on the subject, which I read in 1906 before the San Francisco Medical Society, in which I gave my experience with intravenous injections of atoxyl and tuberculins for the first time. In this paper I called attention to four points which, in combination, had given the most satisfactory results: keep your tuberculous patients in bed as long as you can, have them stay out doors in the fresh air day and night, use tuberculin in combination with atoxyl, intravenously, and avoid reactions. This brings me to the end of Dr. Shepard's paper, where he recommends the use of intravenous injections. I have used only this method for the last eight or ten years. I like it because it is clean, accurate and painless; and because the negative phase after the injection is shorter, and the positive phase longer, than after a subcutaneous injection. I do not maintain that it is better than other methods—it is to a great extent a matter of personal like or dislike—but I believe, with Dr. Shepard, that anyone who tries it for any length of time will become an advocate of this method.

Dr. Edward von Adelung, Oakland, Cal.: In private practice when asked to take care of a tuberculous person should we not always consider what we have learned from pathology, that the children of tuberculous parents are nearly always infected? As practicing physicians we should not consider our duty performed, especially to the children of a tuberculous family, until we have made it clear to the family that it is almost a certainty that the children are already infected. This point having been settled, the children of tuberculous persons should be put under treatment immediately. It does not seem rational to treat the tuberculous parent of a family and leave the children to fight the battle alone for years against the implanted tuberculosis. If tuberculin is of value, as I believe it is, to increase tissue resistance to tuberculosis, the time to use it is as soon as infection occurs. Not only the tuberculous parents but those associated with them should be given prophylactic treatment and tuberculin.

Dr. F. M. Pottenger, Monrovia, Cal.: In regard to the method of intravenous administration, I think that it, like the choice of a preparation of tuberculin, is largely an individual matter. I believe that any preparation of tuberculin is of value. I also believe that it can be used in any way in which it can be made to reach the circulation. I am often asked what preparation of tuberculin I would suggest in a given case. I always reply: "The one which the physician who is expecting to treat the patient knows best how to use." My reasons for preferring subcutaneous to intravenous injections are that they are simpler and less hazardous, although there should be no risk when intravenous injections are given correctly.

It is probable that tuberculin is changed by the first cells with which it comes in contact when it enters the body; and that, if antibodies are to be produced, they are largely produced by the cells at the point of inoculation. Probably one reason why tuberculosis does not heal out more often by the natural tuberculin which is given out from the foci of infection is that the cells which first receive the tuberculin stimulation are injured and unable to respond in the production of antibodies. It is possible that they may destroy the tuberculin without producing antibodies.

When tuberculin is introduced intravenously it passes directly to the lung and its force is spent in stimulating these same injured cells, while, when administered subcutaneously, its force is spent on the local cells at the point of inoculation; which should be better able to respond. I also believe that the slower absorption from the subcutaneous route is an advantage.

Dr. Gerald B. Webb, Colorado Springs, Colo.: In general the inoculation of toxins by the intravenous method yields the smallest amount of immunity. The subcutaneous inoculation of toxin yields more antitoxin. I would ask Dr. Shepard if he has measured in any way the antibodies produced by the intravenous method. Latham of London advocates the stomach route for tuberculin. As I pointed out in a paper earlier this morning, this is a hypoblastic route for treating disease of a hypoblastic structure. I do not agree with Dr. von Adelung that all children who react to tuberculin should at once be treated with tuberculin. The fact that 95 per cent. of children in certain communities will react to tuberculin at the age of 12 should be interpreted as Nature's crude way of vaccination. The hypersusceptibility produced is in a certain degree protective to further infection.

Dr. Charles A. Shepard, Needles, Cal.: I have used atoxyl for years in these cases. I have never seen any harm result, but I employ a much smaller dose than others have advocated, using only ⅓ to 1 gr.; I think it is of great benefit as an addition to tuberculin in producing phagocytosis. I think tuberculin is a most valuable agent used as a prophylactic in children whom we find to be tuberculous. In answer to Dr. Webb, we did not measure the difference in the antibodies intravenously and subcutaneously. We simply went by the signs of reaction.

A PLEA FOR LARGER INCISIONS AND MORE THOROUGH EXAMINATIONS IN ABDOMINAL SURGERY *

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MINNEAPOLIS

While some surgeons make ample incisions and a thorough examination as a matter of routine, there are many more who do not do so, and it is with a hope of being helpful to this latter class that this paper is written. The average surgeon is prone to do his abdominal work through too small an opening. He points with pride to an inch and a half scar after an appendectomy, and a two and a half inch scar after an operation for the relief of pathologic conditions in the pelvis.

We acquired this habit, first, because of our earlier experiences with ventral hernias, which were not uncommon in the practice of every operator, in which, naturally, the smaller the original opening the smaller the subsequent hernia. Then men with dextrous fingers vied with each other to see who could do his work through the smallest opening. With our improved technic stitch abscesses and infected wounds are practically eliminated, and a ventral hernia is a rare sequel; hence this reason for a small opening no longer obtains. It would be very discomfiting to us if we could fully realize how often we have left unrecognized pathologic conditions because our opening was too small to admit of a proper examination, and because we had not acquired the habit of making a thorough examination of the whole abdominal contents in every instance.

When made at one of the accepted points of election there is no valid reason why an opening should not be amply large to permit the introduction of a hand, and, if need be, an arm, for a thorough exploration of the most remote corners of the abdominal cavity. It is infinitely better to make the opening large enough to admit the hand without force than to contuse the edges of the wound by a forcible introduction of the hand or with retractors. Faulty wound-healing has very often been due to too great or too prolonged pressure from retractors, or to forcing a tumor through too small an opening.

With our present technic a large opening will heal just as surely and as perfectly as a small one, and there can be no objections to the larger opening except those based on our former and less perfect technic. Our natural prejudice against a long cicatrix for esthetic reasons, is no longer tenable because the objection is only a fancy, while the fact is that we can do our patients much better service through a longer incision. The laity are now so accustomed to abdominal scars that the size of the scar is no longer a matter of importance to them.

At one time I was quite proud of the fact that I could remove an appendix through a McBurney incision just large enough to admit my index-finger. My pride sustained several serious jolts, however, when I was called on to perform a later operation for the relief of conditions overlooked at the first one. Doubtless many other patients who were not relieved by my esthetic operation went to other surgeons for relief, the result being that I was discredited and my patients were subjected to the suffering, danger and expense of a second operation, and had two scars instead of one, all for the sake of a dainty little scar in the first instance. Every surgeon present must admit that he has had like experiences unless he was wiser than I and made large incisions from the first.

These experiences led me to question the merit of the small opening, but I did not fully realize the error of my ways until I had the following experience. A young man was brought to me for immediate operation with a diagnosis of acute appendicitis. He gave the history of having had a number of previous attacks, but none so severe as the present one. He had been ill but a few hours, had vomited repeatedly, and was suffering very severe pain all through the abdomen, but worse in the right iliac region. His whole abdomen was very rigid. There was marked tenderness over McBurney's point. A McBurney incision was made through which a slightly swollen and congested appendix was removed. Some serum escaped through the wound. The condition of the appendix did not seem serious enough to account for the severity of the symptoms, so a finger was passed into the opening and by forcibly depressing the abdominal walls with the knuckles a distended viscus could be felt. The original incision was closed, and a liberal median incision made through which a hand was introduced, and an intussusception of the ileum into the cecum found. The intussusception, which was caused by an inverted Meckel's diverticulum, was reduced, the diverticulum removed and the patient restored to health. The real condition here might, and ordinarily would, have been undiscovered through the short incision, and the patient would have lost his life unless subjected to a second operation very promptly. As it was, two incisions were made, whereas one of the right size and properly located would have sufficed.

The making of large incisions will not prevent oversights unless a thorough examination is made. A very common mistake made by operators is to be content when they have relieved one condition without looking for others. Even when a condition is found seemingly sufficient to account for all the symptoms, a careful search should be made for others. When one adhesive band is found there are very likely others. An appendix may be removed leaving gall-stones behind, or *vice versa.* Gall-stones may be removed from the gall-bladder and one or more left in the common duct. One typhoid perforation may be closed and others left. Since following the practice advocated in this paper my findings have been so numerous and my surprises so great that I wonder I ever had the temerity to operate through a small incision. The examination should be systematic and thorough, and the operator should never be content until he has found conditions that will fully account for all the symptoms. The appendiceal region, the pelvis, gall-bladder and stomach regions should always be examined as a matter of routine. Most surgical conditions will be found in these regions, but the following experience impressed on me the fact that grave conditions may be found in most obscure and unsuspected regions:

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* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

A country physician recently telephoned to me that he was sending a patient on the next morning's train for an operation for appendicitis. He said, "My diagnosis is appendicitis, but the symptoms don't check up right. Do whatever is necessary for the boy." The patient, a boy of 16, had a normal temperature, an accelerated pulse, a slightly distended abdomen, with tenderness most marked in the lower right quadrant. The most marked feature in the history was that he had been suffering for some weeks with severe cramps and occasional vomiting immediately after eating. An incision was made along the margin of the right rectus, and the appendix was found slightly congested and swollen, but in no condition to account for the symptoms. On inspection the intestines looked normal, but there was some serum present. The danger regions were all carefully examined and nothing found. Beginning at the ileocecal valve a search was made for a Lane's kink, and a small Meckel's diverticulum was found from which a long narrow band extended to a point high up and deep within the abdomen. Underneath this band was a large loop of bowel, not tightly constricted, but the lumen of the bowel was reduced about one-half. The intestine was thickened and sore at the point of constriction, showing that it had been in that position for some time. It was evident that the patient's pain after eating was due to the peristalsis set up by the food. The removal of the diverticulum and band were followed by recovery, with complete relief from pain.

The appendix is so frequently the seat of trouble that the tendency is to make a diagnosis of appendicitis on insufficient grounds. The diagnosis of appendicitis is about the easiest of all diagnoses of intra-abdominal conditions, yet the diagnosis of appendicitis is probably the most frequent wrong diagnosis made. This may be accounted for partly by the fact that appendicitis so frequently complicates other conditions; but it is doubtless due often to the natural tendency of mankind to jump at conclusions. The mistake of removing the appendix when the real cause of the patient's suffering is elsewhere can be so easily avoided by a thorough examination through an ample opening that it seems almost superfluous to argue the matter. Since adopting this method as a routine practice I have found unsuspected gall-stones, appendicitis, adhesive bands, Meckel's diverticulum, internal hernia, Lane's kink, intestinal adhesions, tuberculosis and other conditions too numerous to mention, most if not all of which could not possibly have been certainly diagnosticated by any other method.

The location of the incision is not so important as its size. When the location of the pathologic condition is not definitely known, or when it is definitely known to be in the pelvis or lower abdomen, the median incision is undoubtedly the best, as it affords easy access to all parts, and does the minimum amount of harm. In the upper abdomen the incision should be through or at the inner edge of the rectus because of the presence of the triangular ligament in the median line.

Useful and anatomically correct as the McBurney incision is, it is undoubtedly the one which is responsible for the greatest number of oversights, because it is satisfactory only when it is made small. It can be made large, but in so doing much greater damage is done to the muscles and nerves than by a median incision, and its location is not nearly so satisfactory for general work. It is very much easier to remove an appendix through a median incision than it is to do pelvic work through a McBurney incision. The muscle-splitting incision should be restricted to cases of suppurative appendicitis in which there is no indication for going far into the abdomen, and to unmistakable cases of chronic appendicitis without complications.

In other words, the day of the short incision is past in all but exceptional cases.

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STUDIES IN INFARCTION

EXPERIMENTAL BLAND INFARCTION OF THE KIDNEY AND SPLEEN *

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The early history of the study of thrombosis and embolism is so completely reviewed in the articles of Virchow,[1] Cohn[2] and Welch,[3] that it seems hardly necessary at this time to consume time and space with its detailed presentation. It is very evident that Galen, Vesalius, Lancisi, Bartoletti, Bonetus, Boerhave, and Morgagni had, in a general way, fairly clear ideas as to the nature of these conditions, although, as would naturally be expected, they made no sharp distinctions between the two. Laennec's description of hemorrhagic infarction of the lung, under the name of pulmonary apoplexy, was most illuminating, although he seems to have had little knowledge of the nature of infarction in general. Rokitansky[4] had a much broader conception, but failed to differentiate the possible causes. The results of Cohn's experimental work, as well as of Pannum's,[5] are not conclusive, in that infection and secondary inflammatory changes were almost constant complications.

In 1872 Cohnheim[6] published his "Untersuchungen." The largest part of his work was done on the frog's tongue, but he also extended his experiments to the rabbit's ear, guinea-pig's mesentery and the mammalian kidney. He formulated the conception of end-arteries; a distinction which later observers, notably von Recklinghausen,[7] have shown to be less absolute than Cohnheim taught. Disregarding the earlier work of Cohn and of Blessig,[8] Cohnheim concluded from his own work

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* From the Department of Research Medicine and McManes Laboratory of Pathology, University of Pennsylvania. Aided by a grant from the Committee on Scientific Research of the American Medical Association.

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2. Cohn, B.: Klinik der embolischen Gefässkrankheiten, Berlin, 1860.
3. Welch, Wm. H.: Hemorrhagic Infarction, Tr. Ass. Am. Physicians, 1887, ii, 121.
4. Rokitansky: Handbuch der pathologischen Anatomie, Vienna, 1844, ii, 60.
5. Pannum, P. L.: Experimentelle Beiträge zur Lehre v. der Embolie, Arch. f. path. Anat. u. Phys., 1862, xxv, 308.
6. Cohnheim, J.: Untersuchungen über die embolischen Processe, Berlin, 1872.
7. Von Recklinghausen, F.: Handbuch der allgemeinen Pathologie des Kr [illegible] 156.
8. Blessig [illegible] der Niere nach Unterbindung der [illegible] Anat. u. Physiol., 1859, xvi, 120.

that the blood in a hemorrhagic infarct represents a reflux from the veins.

Von Zielonko,[9] working under von Recklinghausen, studied areas of obstructed circulation in the web of the frog's foot. He showed conclusively that, at least in the web of the frog's foot, the blood enters and distends the capillaries of the infarcted areas from the capillaries of the neighboring areas and never by a return flow from the veins. He also showed that the arterial pressure in the surrounding areas is an important factor in determining the degree and rate of hemorrhagic extravasation. He noted at the end of five or six days the beginning decolorization of the hemorrhagic area. Kossuchin,[10] in 1876, working on the frog's tongue, reached practically the same conclusions; and in 1878 Küttner[11] demonstrated, by injections, the free capillary anastomosis existing between the bronchial and pulmonary circulations in both amphibian and mammalian lungs, and thus opened the way for an explanation of the hemorrhagic character of pulmonary infarcts. A more effective influence, however, in overthrowing Cohnheim's teaching was Litten's[12] repetition, in 1881, of Cohn's and of Blessig's experiments on the kidney. After ligating the renal artery of the rabbit, he obtained greater hyperemia and hemorrhage when he ligated in addition the renal vein, than when he left it open; on the other hand, if he also ligated all sources of collateral circulation, the hyperemia and hemorrhage were reduced to a minimum even although he left the renal vein free. Von Recklinghausen[13] attributed to partial hyaline thrombi, which he observed in the capillaries of hemorrhagic infarcts of the lungs and spleen, an influence which raises the pressure in these capillaries and predisposes to diapedesis. Brown-Séquard[14] had pointed out the possibility that lesions of the vasomotor nerves accompanying the obstructed artery might be a factor in the capillary dilatation. Recently Bier[15] has emphasized the same possibility and has shown that, after section of the artery and vein of the hyperemic area, the blood still remains in the dilated capillaries; whence he concludes that the capillary dilatation is to some extent independent of the transmitted arterial or venous pressure. Mall[16] found it exceedingly difficult to inject from the mesenteric veins into the capillaries and impossible to inject from the veins back through the capillaries into the arteries.

Detailed studies of the anatomic and histologic changes in infarcts of the spleen and kidney, at different periods after infarction, have been made by several observers. Beckmann[17] believed that the infarcts of the kidney were seen as pale infarcts with little evidence of blood, and opposed Rokitansky's view that the pale renal infarct represented a decolorization of the earlier hemorrhagic infarct. Later Weigert[18] emphasized the same conception of anemic infarcts as distinct from hemorrhagic infarcts, and in spite of much evidence to the contrary, his view attained wide general acceptance. Both von Recklinghausen and Thoma[19] apparently accepted his view. In 1877 Argutinsky[20] studied renal infarcts in the dog twenty-four hours and seven days after the injection of wax pellets into the aorta through the crural artery. Contemporaneously Uhthoff[21] made a similar study, using mercury instead of wax. Both observers noted the presence of hemorrhage, or of pigmentation the result of hemorrhage, widespread throughout the infarcted area, thus opposing the theory of Beckmann and Weigert. Talma[22] studied rabbits in which he ligated one branch of the renal artery. In the first twenty-four hours he found the infarcted area swollen and red, but laid stress on the hyperemia rather than on the hemorrhage. Foa[23] in a similar series found that a few seconds after ligation, the infarcted area might be pale, but that at the end of twenty-four hours it was swollen and red. He noted the presence of moderate hemorrhage.

In spite of this work, Thoma[19] in 1894, still described the renal infarct as pale from the outset. More recently Beattie and Dickson[24] report work done by Forbes[25] under Greenfield's direction, in which seeds were injected into the arterial circulation. In the kidney they note, in the early stages, congestion with slight hemorrhage, most marked in the medulla; later, pallor develops both centrally and peripherally, associated with necrosis throughout the infarct. In the spleen they find hemorrhage to be very conspicuous in the early stages, with decolorization appearing later.

Regarding regeneration in the kidney, Litten, Petrone,[26] Arnold,[27] Weigert, Podwyssozki,[28] Thorel[29] and Pearce[30] all have noted epithelial proliferation after various renal lesions, but no true tubule reproduction and no formation of new glomeruli. Pisenti[31] alone claims to have seen, after excising small pieces of kidney, some attempt at the formation of glomeruli and true tubules. Except in those cases associated with abscess formation, organization of the infarcted area has been noted by all observers, beginning, during the course of the first week after infarction, at the periphery and gradually extending toward the center. Very recently MacNider[32] has presented a series of experiments on the cat, in which he ligated one branch of the renal artery and made histologic studies at intervals of from twenty-two hours to ninety days, especial attention being given to the regenerative changes.

The present group of experiments represents the first of a series in which is contemplated the study of infarc-

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15. Bier, A.: *Die Entstehung des collateralen Kreislaufes*, Arch. f. path. Anat. u. Physiol., 1898, cliii, 434.
16. Mall, F.: A Study of Intestinal Contraction, Johns Hopkins Hosp. Rep., 1896, i, 37.
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18. Weigert, C.: *Ueber die path. Gerinnungsvorgänge*, Arch. f. path. Anat. u. Physiol., 1880, lxxix, 87; see p. 104.
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tion in all its phases. Up to this time the greater number of investigators in the field have studied not only infarction, but also the closely related subjects of thrombosis and embolism. That these two latter conditions, of importance in the etiology of infarction, have distracted attention from the infarct itself is reflected in the insufficient reports on the gross and minute anatomy of infarcts and in the incompleteness of experimental procedures to elucidate the various changes found. We propose to study the anatomy of the infarcted areas in various stages, both under normal conditions of circulation and with certain experimental variations in the general circulation of the organ in question; we shall take up certain problems in physiology and physiologic chemistry suggested by our observations and shall extend the investigations to all the available organs of the body so as to be able, on the completion of the study, to make definite and conclusive deductions.

METHODS

The study presented at this time concerns infarction in the kidney and spleen of the dog under normal and variously altered conditions of circulation. In the spleen the vascular arrangement is comparatively simple and the only practicable experimental variation in circulation of any significance was the cutting off of the general arterial supply. In the kidney, however, the fact that the organ is supplied and drained by renal, ureteral and capsular vessels makes matters more complicated. With the capsular vessels we include the anastomoses with the adrenal and lumbar circulation. It was, therefore, necessary to study the kidney under the following conditions:

1. With normal circulation.
2. With renal artery ligated.
3. With renal vein ligated.
4. With renal artery and vein ligated.
5. With renal artery, vein and ureteral vessels ligated.

In female dogs the additional anastomosis with the ovarian circulation is usually very rich and required special ligation. In all cases with ligation of the ureteral vessels any possible flow of urine from the kidney was provided for by the insertion of a small aluminum cannula into the ureter, the silk being tied around it. Decapsulation in addition to universal ligation was not practiced, since it was found that it led to extensive suppuration of the kidney and, moreover, the universal necrosis under these conditions rendered the study of the infarcts impossible.

In ligating the splenic artery, particular care was taken to tie off also the branches anastomosing with the gastric artery. On several occasions simple ligation of the splenic veins was tried, but the early infarcts were entirely obliterated by the swelling resulting from this procedure, and the later ones showed no marked differences from those of normal spleens, with the exception that the entire mass of the spleen was much diminished and the organ pallid in appearance. Accordingly, it was felt that no additional information of value could be obtained from an extended series of this kind. The dogs in all the groups were killed two, four, twelve, twenty-four, forty-eight hours, and four and seven days after the production of the infarcts.

The operations were all done aseptically and under deep ether anesthesia. A median abdominal wound was made from 2 cm. above the umbilicus to the pubis and the left common iliac artery exposed. For the insertion of the emboli an annealed soft copper tube, 35 cm. long and 1 mm. in caliber, provided with a flexible steel obturator, was used. After orientation experiments with begonia, aldike clover, mustard and tobacco seeds, the last were found to be most satisfactory, and were used uniformly throughout the series. About 50 seeds were placed in the end of the copper tube in a space left by drawing the obturator back for a distance of 2 cm. The instrument was inserted into the iliac artery and as far up the aorta as desired. It was not long before sufficient skill was acquired to avoid abrasion of the intima of the aorta. For the production of splenic infarcts it was necessary to have the end of the tube 2 to 3 cm. above the origin of the celiac axis and to occlude, by pressure with the finger, the superior mesenteric, renal and right common iliac arteries. For the production of renal infarcts the end of the cannula was placed just below the origin of the celiac axis and the superior mesenteric and right common iliac arteries occluded. In those cases in which both renal arteries were left open, it was found that placing the cannula at any point above the origin of the right renal artery resulted in more frequent infarction of the right kidney than of its fellow; and when both organs were infarcted, the infarctions were more numerous in the right. For this reason most of the work was done on the right kidney. It was necessary to occlude the mesenteric artery temporarily, so as to avoid the entrance of seeds into the arteries of the intestines and the consequent production of gangrene. Where several renal vessels were ligated, the artery was tied first, then the vein, then the ureteral vessels, and, in females, the ovarian circulation.

Heavy white silk (Corticelli EE) was used for all ligations. The wound was closed by the usual surgical procedure, and after the given time had elapsed, the animals were killed with chloroform. At autopsy the success of the ligations was carefully determined, gross notes and diagrams were made, the tissues fixed in Zenker's fluid, embedded in paraffin and stained with Delafield's hematoxylin and alcoholic yellow eosin. The minute study of the slides was aided by and correlated with the gross diagrams and notes.

RESULTS

Grossly, the experimental infarcts of the kidney became distinctly visible at the surface of the organ in from three to five minutes after the injection of the seeds into the aorta. The first noticeable change was the appearance of a brilliant purple color which occupied a large part of the infarcted area. This congestion gradually extended until, in about ten minutes, the infarct in its entirety was sharply defined. (In only one infarct was there any exception to this rule. This was in a somewhat fibrosed organ, the infarct appearing first as a pallid area with a purple marginal zone, the entire area becoming purple, however, in less than two minutes after the infarct became distinguishable.) No definite swelling was noticeable in this early stage, probably because of the tension of the kidney capsule. At the expiration of two hours, however, the entire kidney, which at first had been of a bright pink color, became of a color so closely matching that of the infarct that the outline of the latter, in a large number of cases, was almost entirely lost. At the end of four hours, although still lacking in definition on the outer surface, the infarct could be fairly well defined in the cut surface. At this time in all the kidneys examined, the infarct was seen as a purple mass of deeper color than the surrounding kidney, rather poorly defined, moist and bloody, usually bulging on section and occasionally protruding somewhat above the surface of the organ. At this stage there was present in the vast majority of instances, a peripheral zone rarely more than 1 mm. in width, in which the tissue was somewhat lighter in color than in either the infarct or the surrounding kidney substance. The fact that this zone could not be distinguished microscopically, leads to the conclusion that it represents a zone of relative compression anemia. This pallid area remained visible for several hours, disappearing in from twenty-four to forty-eight hours, when the infarct reached the limit of its elevation and deep color and began to fade and retract. Necrosis began in the infarcts of the normal kidneys in forty-eight hours, the same being true of the infarcts in those kidneys in which the arterial supply was cut off without other interference with the circulation. After simple ligation of the vein, necrosis appeared in the infarct at the end of twenty-four hours; and with additional ligation of artery and ureter, it appeared in from twelve to twenty-four hours. Usually coincident with the necrosis, a clearly visible, but always very narrow, zone of reactive hyperemia appeared at the margin of the infarct, but congestion of this kind was by no means a constant feature. The necrosis appeared first as irregularly distributed, minute areas near the middle of the infarct, in the later stages becoming larger and fusing to form solid, fairly large masses of necrotic material. In the late infarcts (four to seven days old) where the outer surface and cut surface showed retraction of the infarcted mass, the central necrotic mass was often surrounded by a red zone, which histologically was found to be in part the remnant of suffused blood that had not undergone complete necrosis and in part blood which had infiltrated from the reactive hyperemia. Outside this zone was frequently seen a pallid zone which histologically corresponded to the zone of forming connective tissue. There is little doubt that with the progress of the necrosis, the intermediate zone of redness gradually disappears. Furthermore, in small infarcts this red zone was completely absent at the end of seven days. It must be said, however, that the sequence of gradual changes was not shown nearly so well in gross as in microscopic specimens. Indeed, it seems highly probable that the infrequence of the finding of red infarcts in the human kidney, is due to the fact that in this early stage the infarcted area is so ill defined as to be practically indistinguishable. A point of considerable interest is the fact that the infarcts were often very irregular in outline and varied markedly in general conformation, being most frequently conical, but very frequently hemispheric or cylindric.

The infarcts of the spleen became easily visible even more rapidly than did those of the kidney. They appeared as deep purple, fairly well-defined areas, usually triangular in shape near the poles or margins, but when occurring midway between the poles, extending as linear masses transversely across the organ. No portion of the spleen was more commonly infarcted than another. The most striking feature of the infarcts in this early stage is their marked swelling, which in many cases caused infarcts 1 cm. broad to project 3 to 4 mm. above the surface of the organ. At two and at four hours after infarction, the appearance of elevation was lessened and the outline of the infarct was not so well defined, probably because of the general enlargement and increased depth of color of the organ resulting from general congestion. A small percentage of the earlier infarcts showed a narrow pallid marginal zone, similar to that sometimes seen in the kidney infarcts, but again histologic examination failed to prove its nature. Necrosis did not appear in the infarcts of the spleens with unaltered general circulation until a week had elapsed, but in the series in which the splenic artery was ligated, necrosis was noted at the end of forty-eight hours. The necrosis, at first, was irregularly distributed, but later extended throughout the center of the infarct, except in one infarct in which the white necrotic mass had a central dry, red area. No zone of reactionary hyperemia was demonstrable at any stage of the condition, and it may safely be said that the only significant difference brought about in the course of the infarcts by artificially altering the circulation was that ligation of the artery caused necrosis to appear earlier than when the general circulation was not disturbed.

Histologically the infarcts presented pictures that showed very clearly the progress of the condition. In those infarcts which grossly were distinguished only with the greatest difficulty, the microscope showed unmistakable signs of focal interference with circulation and no mistake in the diagnosis was possible. Rather vaguely outlined in the early stages, definition became clearer and sharper as the condition progressed.

In the normal kidney, two hours after infarction, there was a small zone of subcapsular hemorrhage overlying the infarct, and well-marked congestion of the intertubular capillaries and of the capillaries of the tufts. The blood in both regions was distinctly conglutinated, although in a specimen taken one hour after infarction (not included in the general series and only differing in this one respect) the conglutination had appeared in the intertubular capillaries, but not in the glomerular loops. The blood at this time was confined to the vessels, with the exception of a few corpuscles found here and there in the midst of the space occupied by a very well-marked interstitial edema, and in the subcapsular space which also showed a finely granular albuminous deposit, evidently of an edematous fluid. The tubular epithelium, especially of the convoluted tubules, showed marked cloudy swelling but practically no desquamation, and the nuclei of these cells showed slight fading of the central chromatin, the margins being still sharply defined. The lumina of the tubules were somewhat enlarged because of thinning of the cells surrounding them, but were well filled with a finely granular albuminous material, probably edematous in character. The larger vessels and the vessels of the medulla showed fairly well-marked congestion, but the medulla in this, as well as in all other sections, showed no other notable changes except for moderate fibrosis in the very late stages.

At four hours the conglutination had progressed, and some of the blood in the middle of the infarct showed fading of the hemoglobin. The tubular epithelium was more markedly degenerated and showed moderate desquamation. Desquamation and well-marked cloudy swelling were also observed in the epithelium lining the capsule of Bowman. The edema had become more marked in all situations, being accompanied in the glomerulus by distention of the capsule. Well-marked pyknosis and karyolysis were present.

At twelve hours, aside from the fact that the infarct was sharply defined, there were no notable changes except in degree.

At twenty-four hours the infarct was very clearly defined and it had become possible to distinguish two zones: an outer zone in which the necrosis had evidently come on rapidly, giving the infarct its sharp definition; and an inner zone where hemorrhage had become well marked. The tubules and subcapsular spaces of this marginal zone appeared as coarsely granular, or almost hyaline, acidophilic masses and the interstices between the tubules, in the inner part of this zone, were occupied by conglutinated red blood-cells, and, in the outer part, by fresh, well-stained, non-conglutinated red cells, the latter being largely intravascular and very evidently dependent on a slight hyperemia in the surrounding living tissue. A few polymorphonuclear leukocytes were found in this zone.

At forty-eight hours the conditions were much the same, except that the center of the infarct showed hemorrhage more clearly, and the fading of the red cells had progressed to a considerable degree.

At four days the necrotic central zone was greatly increased in size. A zone of solid necrosis, seen as a peripheral zone in the preceding sections, now became an intermediate zone, due to the appearance of an outer marginal zone of growing connective tissue, somewhat poorly vascularized. No mitotic figures were demonstrable.

At seven days the fibrosis was more extensive, and occasional mitotic figures were seen in the tubules near the margin, but with no evidence of new formation of tubules.

Ligation of the renal vein resulted in several changes in the microscopic appearances of the infarcted and non-infarcted areas. The most notable change was in the blood content, which in the infarct was very much greater than in the non-infarcted area; and two hours after infarction there was seen slight, but easily demonstrable, hemorrhage into the subcapsular space and the interstitial tissue of the pulp. Edema was about the same in this as in the preceding series. The infarct became sharply defined in four hours (earlier than in the first series), showed somewhat more rapidly progressing hemorrhage and conglutination and an early fading of the masses of blood in the middle of the infarct which became almost complete at twenty-four hours. As a whole, the series was characterized by more marked circulatory alterations and more rapid degenerative changes in the parenchyma than were evident in the kidneys with normal general circulation. At four and seven days after infarction, the central zone showed a rich, very fine network of fibrin in the positions from which the erythrocytes had disappeared. The new growth of connective tissue was not especially different in progress or character from that seen in the previous series. In the surrounding kidney substance, cloudy swelling, edema, and congestion were observed very early; definite necrosis was not demonstrated; hyaline casts became evident in four hours, and rapidly increased; and regenerative changes in the epithelium were not demonstrable.

With ligation of the renal artery alone, the blood conditions in the infarct were much the same as in the series with normal general circulation, except that the blood-content of the necrosing area was less, although not markedly so. The changes in the suffused blood progressed with the same rapidity as in the first series; the infarct became sharply defined at four hours (earlier than in the first series, at the same time as in the second series); decolorization of the corpuscles was well-marked at twelve hours and progressed somewhat more rapidly than in the first, and less rapidly than in the second, series; degenerative changes in the parenchyma followed much the same course as in the second series, and fibrin appeared in the center of the infarct just as in the second series. Organization was well-marked at four days. A few mitotic figures were found in the epithelium immediately surrounding the infarct at seven days. The non-infarcted areas showed, in the early stages, well-marked capillary congestion which became much less marked after twelve hours; also moderate edema, well-marked cloudy swelling, going on to distinct necrosis in the later stages, and in the seven-day kidney the presence of hyaline casts.

On ligation of the renal vein in addition to ligation of the renal artery, the infarcts progressed in practically the same way as with ligation simply of the renal artery. This statement applies to blood-content, blood-changes, degenerative changes, and regenerative appearances. Neither did the appearance of the non-infarcted areas differ in any essential feature.

Ligation of renal artery, renal vein and ureteral vessels (and, in female dogs. the ovarian anastomoses) resulted in no distinct variation in the amount of blood in the infarct, or in the subsequent alterations in the blood, from that seen in the third and fourth series, and organization was not noticeably retarded, but the infarct became sharply defined histologically at the end of two hours (more rapidly than in any of the other groups), necrosis progressed with great rapidity (also clearly noted grossly at twelve to twenty-four hours) and no mitotic figures were found in the surrounding epithelium. The non-infarcted kidney substance was anemic from the first and showed rapidly progressing degeneration and necrosis of the epithelium. Hyaline casts were present in considerable numbers at, and after, twenty-four hours; only in the series in which the renal vein alone was ligated, had they been seen so early and in such great numbers.

Throughout all the groups careful microscopic examination showed no very marked leukocytic infiltration. The slight degree of infiltration noted was always marginal, never showed deep penetration and usually appeared at from twenty-four to forty-eight hours.

The spleen at the end of two hours showed rather poor definition of the infarct histologically, with a narrow zone of uninfarcted tissue immediately under the capsule. In the periphery of the infarct was found a marked distention of isolated blood-sinuses with but little or no extravasation. The pulp in this area showed no change, but in many instances the follicles, even though not apparently within the zone of infarction, showed slight pyknosis and karyorrhexis in those cells situated near the middle of the follicles, but not in direct apposition to the central artery. In the middle of the infarct there was more marked distention of the sinuses, more uniformly distributed congestion and very distinct extravasation. Here, also, the follicles were uninvolved by the hemorrhage, but showed somewhat more marked pyknosis and karyorrhexis than did the follicles at the margin of the infarct. Those parts of the pulp that were almost obliterated by congestion and hemorrhage showed moderate pyknosis and karyorrhexis in the remaining cells. Conglutination was moderate in the areas both of congestion and of hemorrhage. The non-infarcted areas showed no pathologic alterations.

At four hours the only changes worthy of note were somewhat more marked conglutination; more extensive nuclear degeneration and a degeneration of the protoplasm of the cells in the infarcted zone as shown by a lessened affinity for the eosin. Trabeculæ, blood-vessel walls and follicular outlines were well preserved.

At twelve hours the infarct became sharply defined by the extension of the hemorrhage into the marginal zone, which previously had shown only congestion. Conglutination was well-marked and necrosis advanced. In the pulp immediately surrounding the infarct, there was a moderately well-marked infiltration of leukocytes which, however, penetrated but a very short distance into the hemorrhagic area.

At twenty-four hours no additional changes could be demonstrated.

At forty-eight hours conglutination had reached such an extreme degree that the infarct appeared as an almost hyaline, red mass, containing the trabeculæ and small circular areas of nuclear fragments representing the follicles. At this stage the nuclei of the trabeculæ showed a marked diminution in the affinity for the hematoxylin. The marginal leukocytic infiltration was about the same as at twenty-four hours.

At four days the infarct was sharply defined and still showed a narrow zone of living tissue immediately beneath the capsule. In the margins of the infarct a few of the trabeculæ with their blood-vessels persisted apparently uninjured. From the tissue immediately surrounding the infarct, i. e., from the trabeculæ in the margin and their blood-vessels, from the fine fibrillar connective tissue framework of the living pulp, from the thin layer of living tissue underlying the capsule and from the capsule itself, a slight new growth of connective tissue, rather poorly vascularized, had developed. The infarct itself appeared as a mass of almost completely decolorized erythrocytes and many irregularly distributed nuclear fragments. In the center of this mass, the red blood-cells had almost completely disappeared and there was found a fine network of fibrin, enmeshing a relatively small number of fine albuminous granules.

At the expiration of one week, the new growth of connective tissue was somewhat more extensive; the leukocytic infiltration had almost completely disappeared, and the central area of complete necrosis and fibrin formation was somewhat more extensive. At this stage was present a very slight hyperemia in the smaller vessels outside the zone of organization, a feature not demonstrable earlier in the course of the development of the infarct. At no time could granular or crystalline pigmentation of the infarct be demonstrated.

Ligation of the splenic artery produced practically no change in the microscopic character of the infarct, except that the process extended to the capsule without any intervening rim of living cells. In the later infarcts, however, a zone of new growing connective tissue appeared between infarct and capsule, evidently taking its origin from the latter structure. Decolorization of the erythrocytes appeared somewhat sooner than in the preceding series and progressed more rapidly. Necrosis of the cells of the pulp and follicles followed the same course as in the spleens with normal general circulation. The non-infarcted tissue showed no effect of the ligation, except that, after one week, the protoplasm of the larger lymphocytes and endothelial cells showed diminution in affinity for eosin.

CONSIDERATION OF THE DATA

In the discussion of the various facts established by, and inferences to be drawn from, this study, it is proposed to take up, first the circulatory changes with especial reference to congestion, conglutination of red blood-cells, solution of hemoglobin, fibrin formation; then the progress of degenerative changes in parenchymatous and connective tissues, and finally the evidences of regeneration and organization.

A conclusion from the work that is unavoidable is that, in the kidney and spleen, all infarcts are primarily hyperemic. The term "hyperemic" is used advisedly, for in the earlier stages, at least in the kidney, hemorrhage plays a very unimportant part in comparison with hyperemia. In the spleen, the extravasation can be seen distinctly in the center of the infarct four hours after embolism, but in the kidney it does not become an important feature for from twenty-four to forty-eight hours. The hyperemia is diffuse and is much more striking in the capillaries and small vessels than in the larger arteries and veins. T[illegible] nsidered by most writers to be the [illegible] due to injury of the vessel walls. From our histologic examination this statement cannot be gainsaid; indeed there is much experimental evidence for accepting it. In the walls of the larger arteries, however, we were not able conclusively to demonstrate early degeneration; their walls were distinctive until long after the hemorrhage had appeared. This does not by any means controvert the statement in question, because diapedesis naturally would take place from the smaller vessels; vessels whose walls are not likely to be well defined under conditions such as are found in the infarcted areas. In the kidney, the early hyperemia was most notable in the intertubular and glomerular capillaries, and as it was in these places that extravasations were seen there is little room for doubt that the capillaries which are the seat of the most intense congestion, furnish the blood that later appears as extravasations. In the spleen, the sinuses of the pulp showed intense early congestion, a congestion which was not, and did not later become, evident in the follicles: the hemorrhage appeared in corresponding position and evidently came from the thin-walled vessels.

In determining the source of the congestion, arteries, veins and capillaries must be considered. It is very unlikely that the capillaries play an important part, because very early they become occluded with the conglutination thrombi, which will be discussed later. In addition, the work of Mall[16] leaves very little doubt that physiologically the capillaries soon become impermeable. The possibility that reflux from the veins plays an important part has also been ably refuted by the same writer. In addition also, the study of our specimens shows that ligation of the veins had practically no effect in varying the amount of congestion after the pressure of the arteries had been eliminated. That the general vascular pressure in the kidney has an influence on the blood-content of the infarct, was shown by the increased amount of blood in the infarct when the vein alone was ligated. Ligation of the main artery and vein was followed by the appearance of relatively little blood in the infarct, doubtless because of the relatively low pressure maintained by the collateral circulation. Cutting down the circulation to a minimum, however, as was done by additional ligation of the ureteral and ovarian circulation, was in no case followed by what might be called an anemic infarct. Where all circulation was cut off, necrosis was so extensive that no infarcted areas could be clearly seen. The assumption is obvious, therefore, that whatever hyperemia is present, is due to the dilatation of the vessels in the infarcted areas and is dependent on the arterial pressure of the surrounding, living tissue; regurgitation from the veins plays no significant part in its production.

Edema of the interstitial tissues and the presence of an excess of albuminous precipitate in the subcapsular space, were constant and early but tended soon to disappear.

Marginal hyperemia, the so-called collateral hyperemia, usually did not appear until forty-eight hours or more had elapsed. It would seem that this is a local condition dependent on the irritation of the necrotic mass, because it did not appear until necrosis was distinctly in evidence. That it is local was evidenced by the fact that variations in general circulatory conditions did not appreciably influence it.

The term conglutination, used freely in describing the microscopic appearance of the infarcts, is taken to mean clumping and fusion of the corpuscles; mere clumping, however, is of little significance because, of necessity, the corpuscles are in close apposition as they lie in the tissues and vessels. The condition appeared within two hours after infarction, gradually became more marked and reached its height in from twenty-four to forty-eight hours, and then slowly became less manifest because of fading of the corpuscles. Little change in this process was found under the various circulatory conditions, except that in the series of kidneys in which the vein alone was ligated, conglutination reached its height somewhat earlier than in the other groups. What part the heightened pressure played in this variation is problematic, but it seems likely that the chief reason why the change was so notable is that, when the vein alone was ligated, the vessels were richer in blood and the extent of conglutination correspondingly great. In the spleen, conglutination occurred much as it did in the kidney, the only difference being that it appeared to be fairly extensive in the earlier infarcts, probably because the blood is in greater masses in the distended splenic sinuses than in the smaller kidney capillaries.

Fading of the corpuscles or solution of their hemoglobin did not appear, as a rule, until forty-eight hours had elapsed. It was usually seen in the center of the infarcted mass and progressed peripherally, but even at the end of a week, at least in the larger infarcts, there was usually a fairly large mass of conglutinated, well-stained cells between the central pale areas and the marginal zone of the infarct. In none of the slides was granular pigment deposit found, and it seems probable that the hemoglobin diffused into the surrounding tissues without further decomposition. If any flow of tissue juice or plasma occurs in the vessels of the infarcted area it must be extremely slight because of the conglutination thrombi in the capillaries and the coagula in the larger blood-vessels. It is but natural to expect that the earliest and most extreme degeneration would occur centrally, because this part of the mass is furthest from the source of nutrition. It is not likely that leukocytes play any part in the removal of the hemoglobin, because none of the specimens showed deep penetration of these cells into the infarct. Indeed, with the exception of some of the later infarcts in the spleen, there was never more than a very moderate peripheral infiltration of polymorphonuclears, and in the kidney the lymphocytes were even less prominent. That venous drainage has little or nothing to do with the decolorization, is evidenced by the fact that ligation of the vein played no important part in the fading of the cells, the central pallor of the infarct appearing quite as soon in this series as in the others. The same is true of changes in the arterial conditions, for solution of the hemoglobin was quite as prominent a feature in the groups in which the artery was tied as in the group in which no vessels were ligated. It would appear, therefore, that plasmatic diffusion is responsible for the disappearance of this pigment.

Coincident with the disappearance of the hemoglobin, fibrin could be seen in the center of the infarcted area. It did not appear as heavy bands at any time, but was clearly distinguishable as a closely woven mesh of very fine threads with the typical nodes at the points of intersection. This applies equally well to kidney and spleen.

The degenerative changes in the parenchyma put in their appearance early, first as simple cloudy swelling, then desquamation, nuclear degeneration and finally at the end of about forty-eight hours, complete necrosis. All these changes reached their height in the central parts of the infarct before the marginal parts became affected, and also showed more markedly in the convoluted than in the other tubules. An interesting feature is the fact that the epithelium in the center of the infarct tended to break up into a finely granular mass, whereas that in the margin, slightly affected at first, suddenly underwent complete necrosis and the necrotic material filled the tubular spaces as a coarsely granular, almost hyaline mass. This marginal epithelium probably receives just sufficient nutrition by imbibition to keep it alive for a short time. When this nutrition fails, probably because of the pressure of the swelling infarct, the epithelium suddenly undergoes this peculiarly rapid necrosis.

In many of the infarcts, for the first twenty-four or forty-eight hours, a small number of tubules in the margin and, indeed, a few fairly deep in the infarct, retained their form and normal staining reactions, but at the end of this time, as the infarct became sharply defined, these tubules became less frequent and were very exceptional in older infarcts.

In the spleen, the degeneration of the cells of the pulp and follicles appeared first as nuclear pyknosis and fragmentation, which was especially evident in the center of the follicles. It extended rapidly, however, so as to involve the entire follicle and pulp. The protoplasm showed little demonstrable change until about forty-eight hours had elapsed, when there was distinct solution.

The interstitial tissue did not degenerate until late in the course of the condition. In the glomerular tufts necrosis was evident first in nuclear fragmentation and then in complete disappearance of nuclei and vascular loops. In the spleen, the trabeculæ lost their nuclei rather by lysis than by rhexis, and subsequently the whole mass of tissue lost its outlines.

Regeneration of the parenchyma in the kidney was evidenced only by the presence of mitotic figures, sometimes typical and sometimes atypical, in the tubules immediately surrounding the infarcted zone. In concordance with other workers, we were unable to demonstrate tubule formation. We were not able to demonstrate regenerative changes until a week had elapsed, and in the series in which artery, vein and ureteral circulation were cut off, the sections showed no mitoses whatever.

In the spleen, no evidence of regeneration was found. In both spleen and kidney, however, organization at the periphery of the infarcted areas was demonstrable at four days and was well under way at the end of one week. The newly-formed tissue in both organs was notably poor in new blood-vessels. In the kidney, variations in the growing connective tissue, under the differing circulatory conditions, was not noted.

In the series in which practically all the circulation was cut off, marked progressing fibrosis throughout the non-infarcted areas was present, but the growth immediately about the infarct was no greater than in the other series.

CONCLUSIONS

The most important conclusions are:

1. Regardless of general circulatory conditions, all infarcts of the kidney and spleen of the dog are first hyperemic, then hemorrhagic and finally become pale from coagulation necrosis.

2. The hyperemia of the early infarcts is, in a general way, proportional to the vascular pressure within the organ as a whole, and is not due to reflux of blood from the veins.

3. Conglutination of the red blood-corpuscles is the earliest demonstrable change in the blood of the infarct; removal of pigment from the infarcted area is probably due to plasmatic diffusion; definite fibrin formation appears relatively late in the course of the condition.

4. Necrosis progresses more rapidly in infarcts in those organs in which the general circulation is altered in some way (either from damming back of blood by vein ligation, or from cutting down arterial supply), than in organs in which the general circulation is normal.

5. The pallor of the white infarcts is due to decolorization of the contained conglutinated and coagulated blood; decolorization begins in a general way in the middle of the infarct and extends peripherally.

6. Organization progresses as well in organs in which the general circulation is diminished as in those in which the general circulation is normal.

7. Regeneration is seen, in the kidney, only in the occurrence of mitotic figures in the epithelium near the margin of the infarct; it is diminished by any decrease in the general circulation. Regeneration of the cells of the splenic pulp or follicles is not demonstrable previous to, or at the end of, one week.

THE IMPORTANCE OF MEDIASTINAL GLANDS

AND FAILURE TO MAKE PROPER DIAGNOSIS *

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This investigation, the results of which are shown below, was undertaken to determine the significance of mediastinal or bronchial glands in early or mistaken cases of tuberculosis of the right lung apex. Before considering the diagnosis of these glands and their connection with mistaken cases of right apical tuberculosis, it may be well, however, to examine anatomically the location of the bronchial glands and their relation to other lung structures and to review the literature on this subject.

As seen in the diagram (Fig. 1, Sukiennikow's[1]), the greater number of glands are situated on the right and along the main bronchial vessels; there is also greater massing of glands on the right as well as chain formation. Normally, we also find that the right bronchus branches off at a higher point than the left, corresponding to the fifth dorsal vertebra (Gray[2]); it is also shorter, wider and more vertical than the left bronchus. The right bronchus apparently is also a more direct continuation of the trachea than the left (Gray). Sukiennikow, describing the development of the tracheobronchial and the bronchopulmonary lymph-glands, concludes that the appearance and the grouping of these glands have a fixed regularity of massing, and that those situated in the angle of the bronchi are bound there. It is also well to remember that the cervical lymph-nodes are not anatomically connected with the tracheobronchial lymph-nodes (Bartel[3]), so that these glands are excluded from our consideration.

In 1889 Krönig practiced a method of percussion of the apices, which determined for him the existence of a simple non-tuberculous collapse induration of the right lung apex; and in 1907 he issued a treatise[4] wherein he set forth his studies regarding the false dulness obtained at the right lung apex, usually over the clavicle and spine which had a great similarity to incipient tuberculosis. Associated with this was a residual light bronchial catarrh, cough, expectoration, etc. His explanation was a physiologic one, namely, an impaired infiltration caused by adenoid growths and catarrhal mucous membranes, and that, with a greater inspiration of dust-laden air on the right, an induration resulted at the right apex and later a collapse of that portion. The bronchial breathing is slightly increased, but varies very little from the normal. In 1908 Blumel[5] substantiated these findings of Krönig. On the examination of 1,700 referred tuberculous patients, eighty-five did not have tuberculosis, and twenty-eight of these were considered as cases of collapse-induration. Wolff-Eisner,[6] in 1909, with the aid of conjunctival tuberculin reactions, demonstrated the same thing in several cases. Bing,[7] in 1910, in the examination of a great many cases by means of a sagittal method of percussion like Goldscheider's[8] found another cause for false dulness at the right apex. This dulness occurs in older children of tuberculous families. He found by percussion either a slight or an increased dulness, but with auscultation nothing very definite. These findings covered a much less surface than his cases of apical infiltration, and the harsh breathing usually found in such cases was virtually absent. On a closer examination and by lighter sagittal percussion with firm pleximeter pressure, especially in the intercostal spaces, which brings one closer to the lung, he concluded that he was dealing with enlarged bronchial glands. According to Bing, no cases were found of Krönig's retraction dulness, and he concludes that it should not be considered unless all evidence of adenopathy has been ruled out, and that wherever swelling of the bronchial glands occurs, there will be found a false dulness at the upper half of the right lung apex. This is slighter on the inner and greater on the outer side, thus differentiated from true infiltration dulness by position and by Goldscheider's method of sagittal percussion which emphasizes the median line and upper borders of the lung, front and back surfaces with the accompanying dulness over sternum and back. Bing's explanation includes the statement that by the swelling of the bronchial glands, more or less air-spaces are shut off, and that, as a result of this, dulness can also be demonstrated at the junction of the second rib and the sternum, along the right of the sternum, and at the back from the third to the sixth rib. Figure 2 is made from one of his cases.

Bing declares that should one percuss by Krönig's more or less vertical method, a clear sounding zone or isthmus would be found above the upper border of the lung. In disease processes this zone is decreased and the

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* From the X-Ray Department, Boston City Hospital.

[1] Sukiennikow: Berl. klin. Wchnschr., 1903, xl, 316, 347, 369.

[2] Gray: Illinois Med. Jour., 1908, xiv, 54.

[3] Bartel: Sixth Internat. Tuberc. Cong., Vienna, 1907, p. 141.

[4] Krönig: Deutsche Klin., Berlin, 1907, xi, 612.

[5] Blumel: München. med. Wchnschr., 1908, lv, 1573.

[6] Wolff-Eisner: Klin., 1909, v, 890.

[7] Bing: Berl. klin. Wchnschr., 1910, xlvii, 376.

[8] Goldscheider: Berl. klin. Wchnschr., 1907, xliv, 1267, 1309.

percussion sound diminished, but if his method of sagittal percussion is used, no actual dulness is found, which is present only with the vertical method. It is apparent, therefore, that a dulness at the apex in the median line is due to an infiltration. If found more lateral and below the apex, in first or second intercostal space, by sagittal percussion, it is due to a more or less solid process occurring lower down in the lung. Consequently, it may be dependent on the swelling of glands and verified by dulness over the sternum at the first intercostal space. Some of Bing's cases were corroborated by x-ray examination. These findings do not apply to cases in which there is more muscular development on the right side or any other physical changes.

D'Espine,[9] in 1907, described an auscultation sign which some investigators claim of value, in determining the presence of tuberculous bronchial glands in children, namely, the whispered voice with a bronchial ring heard at the level of the spinous process of the seventh cervical vertebra and over the first dorsal vertebra. This, he explains, is due to the enlarged ganglions which surround the lower part of the trachea and the bifurcation of the bronchi. In a number of non-tuberculous cases (bronchopneumonia with measles and four cases of grip), the sound was present from the seventh cervical and over the first four dorsal vertebræ. Autopsy showed that in some cases adenopathy was present. He therefore emphasizes that where the sound persists for five or six months and longer, there can be no doubt of the presence of enlarged bronchial glands.

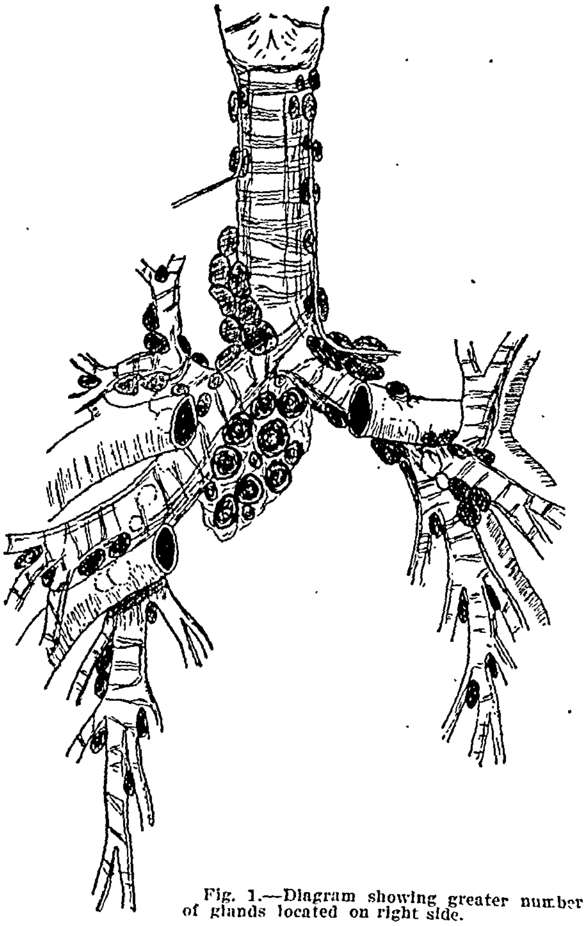

Fig. 1.—Diagram showing greater number of glands located on right side.

Gray, in 1908, found with auscultation according to D'Espine's method over the vertebral column the bronchial respiratory murmur. He emphasizes that in examining children in auscultation certain voices are husky and lacking in resonance owing to laryngeal disease and that other tracheal sounds may also predominate; but he does find that vertebræ auscultation offers certain almost constant findings. Sokolowski[10] has found in enlarged gland cases that the expiration is prolonged and more intense and inspiration rougher, especially between the shoulder blades. Stoll,[11] in the examination of 175 children for tuberculosis of the bronchial glands, obtained some results which, although not conclusive, are interesting. He found that dulness over the sternum or in the inner third of the first left intercostal space was present in forty-one cases, of which 49 per cent. reacted to tuberculin. On percussion of the vertebra spines, at or below the fifth dorsal, positive signs were present in nine out of forty cases; all nine reacted to tuberculin, and the seven adults, all of whom had other signs of bronchial gland enlargement, had either vertebral or paravertebral dulness. Vertebral bronchophony was present in eighty out of 168 children and sixty-six of the eighty reacted to tuberculin, and in twenty-four adults who had vertebral bronchophony 80 per cent. gave positive tuberculin reaction. Roberts[12] says that in a fair proportion of cases glands do not give rise to any symptoms or they may be obscured by existing lung trouble, but when the bronchial glands are affected and attain a sufficient size, the character of the breathing and cough will reveal more or less obstruction of the main air passages or nerve irritation; and it is to the phenomena thus originated that special attention must be paid

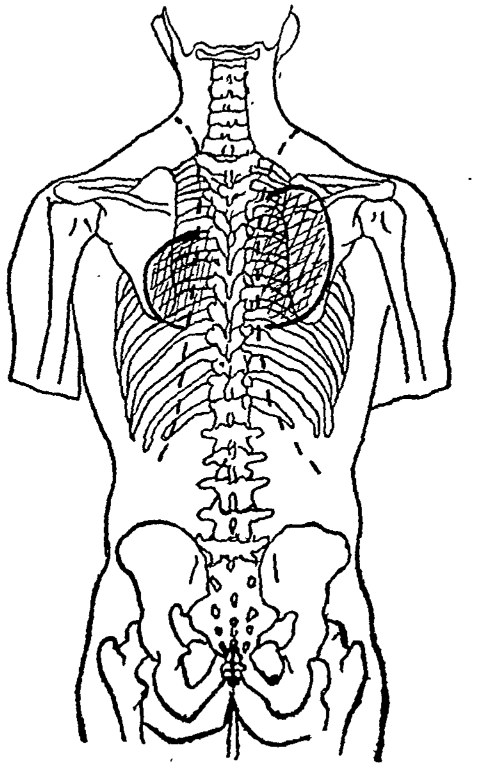

Fig. 2.—Diagram showing area of gland dulness and lung outline.

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[9] D'Espine: Bull. de l'Acad. de méd., Paris, 1907, January, p. 142.

[10] Sokolowski: Klinik der Brustkrankheiten, Berlin, 1906.

[11] Stoll: Tr. Nat. Assn. Study and Prev. of Tuberc., Sixth Ann. Meet., p. 252.

[12] Roberts: Allbutt and Rolleston System of Medicine, v, pp. 595-669.

in early diagnosis, particularly in children. Numerous other signs, such as enlargement of the veins of the chest, pains, hiccough, cough, etc., are fully mentioned in literature (Sahli,[13] Osler,[14] Roberts, and others), but, in the opinion of investigators, they are secondary considerations to auscultation and percussion. It is apparent, however, from the foregoing that when the tracheovertebral and bronchovertebral spaces are occupied by glands, they may then become sound transmitting. When on examination the patient bends forward, the structures are in close proximity to the vertebral column and on auscultation and percussion disease conditions are more easily determined. It is also clear, from an anatomic-physiologic point of view, that if inflammatory conditions or pressure are present on the bronchi, the right lung and apex would more easily convey any abnormal sound that is produced.

TUBERCULIN REACTION

In the past few years discussion has been caused by the fact that tuberculosis reactions were obtained in so-called negative tuberculosis cases. Hamman and Wolman[15] reported that in non-tuberculous cases, 57 per cent. reacted to the skin tuberculin test and 83 per cent. reacted in the doubtful cases. In seventy-seven cases of Stoll's, 57 per cent. reacted to tuberculin, and in sixty-nine cases not classified 32 per cent. gave reactions. These were from a total of 175 children whom he studied to prove the reliability of certain signs said to be indicative of tuberculosis of the endothoracic glands. Sachs[16] concludes, in discussing the value of local tuberculin reactions, that the verdict of to-day is that a positive reaction following the local application of tuberculin signifies the existence of a tuberculous focus somewhere in the organism, without giving a definite idea of the active or latent character of the process. It will be sufficiently plausible, then, to suggest that a great many patients may have had tuberculous thoracic glands.

Pathologically, it is obvious that in considering enlarged glands which occur in the chest we are dealing with no one disease class. In all likelihood, tuberculosis is in the majority of cases responsible for their enlargement. But the glands alone may be involved, either in an acute or subacute stage, or inflammation of neighboring structures may have been extended to them. The tracheobronchial or mediastinal glands act as filters in which lodge the various foreign particles which escape the normal phagocytes of bronchi and lungs (Osler). It has been pointed out by various writers that catarrh of the mucous membranes predisposes to disease of the mediastinal glands. The lymph tissues and possibly the tonsils are so impaired that the bacteria find their way down until taken up by the lymphatic glands. Should spontaneous healing not take place, which Osler states happens too often, acute tuberculosis results. These glands may enlarge to such an extent that they produce pressure symptoms (Osler, Roberts, Sokolowski and others). The bronchi, and especially the right bronchus, may be compressed to such a degree that abnormal breathing sounds are caused, which may arouse suspicions of apical tuberculosis. Other symptoms, of course, may arise and in one case examined at the City Hospital there was reason to believe that pressure on the esophagus, giving rise to stricture signs, was due to enlarged mediastinal glands (Osler). Suppuration of the glands and perforation of adjacent vessels is not uncommon (Sokolowski). Abscess may occur (Hare[17]) and is not uncommon. It was found in a collection of mediastinal disease cases that the anterior mediastinum was far more frequently affected than the other two spaces and that the disease, whatever it may be, occurs more among males than females (Roberts, Hare). In a list of nonsuppurative mediastinitis Hare gives only two cases in which the glands were affected, one occurring in the middle and the other in the posterior mediastinum; this was from a total of sixteen cases. Of 104 cases of miscellaneous diseases of the mediastinum, fifteen cases were of glands.

The question of tuberculosis of the glands and whether primarily infected has been broadly argued by most pathologists. Wollstein,[18] in a study of the distribution of the tuberculous lesions in 185 infants and young children (post mortem) under 3 years of age, showed that 16.4 per cent. gave tuberculosis of one or more organs. In thirteen cases the lungs and bronchial nodes were alone involved and in one case the bronchial lymph-nodes were alone involved; this was at the root of the right lung.

Considering the bronchial nodes alone, there occurred in 131 cases tubercles with cheesy degeneration, in three cases suppuration and in six cases calcareous degeneration. In thirty-eight cases the mediastinal lymph-nodes were markedly affected.

What is especially interesting for consideration is that ninety-seven cases gave the largest bronchial lymph-nodes on the right side, compared with thirty-four cases on the left side. This is naturally explained by the previously stated fact that the right main bronchus is shorter and wider and a more direct continuation of the trachea, so that inspiration is facilitated in the right lung. There appears to be no question as to the primary affection of the glands (Roberts), but whether any previous disease predisposes to this is to be considered, and Roberts states that it is a question whether these glands are contracted glands of a previous disease or the early affection of a present disease. He also believes that heredity is a factor in primary tuberculosis of the glands.

Tendeloo, in his article on the channels of infection,[19] decidedly states that if there is tuberculosis of the bronchial lymphatic glands without tuberculosis elsewhere, it has occurred from the bacilli coming from the lung. He also states that the primary tuberculosis foci occur not in the apex but near the apex and the vertebral column. He more precisely says that the primary foci occur most in the peribronchial, perivascular tissue, concluding, however, that it is possible that bacilli go from the pulmonary lymphatics either directly or after having infected one or more peribronchial lymphatic glands, then from these glands elsewhere in the lung lymphatics. Hare's statement is that the tubercles may arise in the glands themselves, or become secondary growths, owing to primary disease of the lung or pleura, and in many cases at the post-mortem the tubercular involvement is so general that it is impossible to decide as to the primary seat.

In 151 cases of healed tuberculosis (Adami and McCrae[20]), the thoracic glands were involved in forty-five cases and in these the group of glands at the lung root predominated thirty-eight times, and where only a single site was found it was twenty-three times in the lung root group. In the latent tuberculosis cases (93), the thoracic nodes were involved thirty-five times and eighteen times in combination with disease of the lungs. The relation of pleural adhesions to healed and latent tuberculosis gave eleven cases in which tuberculosis existed in the thoracic nodes and six in combination with disease of the lungs.

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[13] Sahli: Diagnostic Methods.

[14] Osler: Practice of Medicine.

[15] Hamman and Wolman: Tr. Nat. Assn. Stud. and Prev. of Tuberc., Sixth Ann. Meet., p. 240.

[16] Sachs: Tr. Nat. Assn. Study and Prev. of Tuberc., Sixth Ann. Meet., p. 203

[17] Hare: Mediastinal Diseases, 1889.

[18] Wollstein: Arch. Int. Med., 1909, iii, 221.

[19] Tendeloo: Sixth Internat. Cong. Tuberc., 1908, i, 86.

[20] Adami and McCrea: Tr. Sixth Internat. Cong. Tuberc., 1905, i, 325.

In considering the sites of early tuberculosis infection, Adami and McCrae show that the thoracic nodes were affected in 33 per cent., which is second to the lungs in frequency of infection. In another group of generalized tuberculosis the figures are still more interesting from our point of view, in that the lungs were involved only in 14 per cent. more (that is, in 95 per cent.) than in the lymph-nodes which showed 81 per cent., or thirty-five cases; of this number all but two cases were in the glands of the thorax. In connection with, and under the head of, tuberculous infection of other organs, there are forty cases given of involvement of the thoracic nodes.

From the foregoing figures it can, therefore, be accepted that tuberculosis of the thoracic lymph-nodes occurs next in frequency to tuberculosis of the lungs, and that the disease does occur alone in these glands. It is also consistent to say that since there are more glands on the right side and since physiologically or anatomically the structural position of the bronchi is such that disease in aspirated infection is more likely to occur on that side, there is all the more reason to believe that tuberculosis of the right bronchial or peribronchial lymph-nodes can be confused with the diagnosis of tuberculosis of the right apex. This contention, that many cases of questionable tuberculosis of the right apex is due to disease in the glands, is strengthened if Adami and McCrae's findings are accepted—that tuberculosis does not occur more often in the right apex—and also Krönig's reports on *Collaps-Induratic* of the right apex in which the symptoms closely resemble those of early infiltration. Bing also emphasizes the difference between early tuberculosis of the right apex and the enlargement of thoracic glands. Sokolowski states that the enlarged glands are mostly found post mortem and as such have little significance.

RESULTS OF INVESTIGATION

The physical and fluoroscopic examination of the chests of 620 patients at the Boston City Hospital has demonstrated the common failure to recognize accurately the presence of mediastinal or bronchial glands. The majority of these patients were referred to the *x*-ray department to ascertain or verify the presence of tuberculosis of the lungs. In the light of recent statements made concerning the percussion dulness found at the right lung apex (Krönig, Bing), the results shown in the accompanying tables may be interesting.

Of these 620 patients examined by fluoroscope, 147 showed the presence of glands in the mediastinum or at the root of the lungs. The majority, as stated, were either tuberculous or had signs in the chest which were thought might be tuberculosis; most patients had several physical examinations. Of these 147 patients, in only two did the question arise of the probability of enlarged bronchial or posttracheal lymph-glands.

It is conceded that in most of these cases the glands were not large enough to cause marked disturbances, but considering that there were a number of cases of questionable right apical tuberculosis, one may presume that in the cases proving negative by fluoroscope, the glands may have given rise to the signs which were interpreted as early apical tuberculosis.

In a large number of early apical tuberculosis cases examined at the Boston City Hospital and at the Boston Consumptives Hospital it was noted that a certain percentage proved negative, while among these patients, the majority of whom were children, many reacted to tuberculin. There was no idea at that time of examining for thoracic glands, but as a result of this interesting study the indefinite thought occurred whether enlarged glands by pressure or otherwise might not be the cause of the questionable dulness at the right apex, with the sharp or rough inspiration, etc. Since then definite statements

TABLE 1.—CLINICAL DIAGNOSIS

100 cases clinically suspected of pulmonary tuberculosis.
24 " " diagnosed as " "
8 " " " " bronchitis.
7 " " " " pneumonia.
5 " " " " probable aneurism.
4 " " " " cardiac disease.
2 " " " " asthma.
2 " " " " influenza.
2 " " " " pleurisy.
1 case " " " bronchiectasis.
1 " " " " abscess.
3 cases no diagnosis.
159
—12 cases included with two diagnoses.
147 cases.

TABLE 2.—DIAGNOSIS BY *X*-RAYS

35 cases tuberculosis of both apices showed glands on both sides 23 times
35 " " " " " " " " right side 8 "
35 " " " " " " " " left " 4 "
13 " " " " sides " " " both sides 11 "
13 " " " " " " " " right side 1 time
13 " " " " " " " " left " 1 "
25 " " in one apex with " " " both sides 13 times
25 " " ? of disease " " " right side 9 "
25 " " in other apex " " " left " 3 "
28 " " of right apex " " " both sides 9 "
28 " " " " " " " " right side 15 "
28 " " " " " " " " left " 4 "
4 " " " left apex " " " both sides 2 "
4 " " " " " " " " right side 1 time
4 " " " " " " " " left " 1 "
14 " " apical, either side " " " both sides 8 times
14 " " " " " " " right side 4 "
14 " " " " " " " left " 2 "
11 " all other diseases " " " both sides 4 "
11 " " " " " " " right side 6 "
11 " " " " " " " left " 1 time
17 " negative " " " both sides 9 times
17 " " " " " right side 7 "
17 " " " " " left " 1 time

TABLE 3.—POSITION AND NUMBER OF GLANDS

94 cases had two or more glands.
53 " " single gland.
50 " " glands on right side.
44 " " " " both sides.
36 " " " in mediastinum (above lung roots).
17 " " " on left side.

TABLE 4.—100 MALE, 47 FEMALE PATIENTS

6 patients aged from 1 to 10 years.
21 " " " 11 " 20 "
42 " " " 21 " 30 "
34 " " " 31 " 40 "
28 " " " 41 " 50 "
8 " " " 51 " 60 "
6 " " " 61 " 70 "
2 " ages not given.
147 total.

TABLE 5.—OCCUPATIONS OF PATIENTS

Bakers, cooks, etc	5
Bartenders, waiters, barbers, etc	5
Factory workers	11
Farmers, messengers, etc	4
Firemen, machinists, metal workers, etc	12
House, home, etc	26
Laborers	21
Physicians, nurses, etc	5
Printers	4
Salesmen, clerks, etc	8
School	18
Tailor, seamstress, laundry, etc	13
Teamsters, junk-dealers, etc	8
Not given	7
Total number of patients	147

have been made, as already quoted, by Bing and others that dulness at the right apex can be caused by the swelling of bronchial glands.

In 100 cases of this investigation of questionable tuberculosis, it was shown that in fifteen there was no tuberculosis and of twenty-four diagnosed as tuberculosis, seventeen proved negative. In these thirty-two negative patients the glands were shown to be enlarged. In eighty patients of 100 diagnosed as questionable and in twenty-four diagnosed as positive cases the apices were the parts under consideration. Of the eighty, the right apex was questioned in thirty-two, the left in eight and both in forty cases. In five cases of enlarged questionable aneurysm of the aorta, there proved to be enlarged glands present and no aneurysm. Therefore, we have apparently found dulness in a number of cases at the apices and especially at the right apex where no congestion or infiltration was found, but where enlarged thoracic or bronchial glands were evident. Considering that of 147 patients with questionable or positive cases of tuberculosis or other diseases, there were glands on the right side in fifty, on the left in seventeen, on both sides in forty-four and in the mediastinum—that is glands above the roots of the lungs—in thirty-six cases, we can state that glands do occur more often on the right side than on the left and in conjunction with the right apex dulness. In the examination of these cases it was difficult to determine the presence of glands or their number when there was either tuberculosis, congestion or some such disease extending over a great part of the chest and consequently overshadowing the glands. It does not, therefore, follow that when glands have been seen on the left side, and not on the right, that they may not, however, be present there also. It is a question also whether the statement which Bing makes that bronchial glands occur mostly in young children is absolutely correct. In this series of cases, 118 patients were adults, that is, above 20 years of age. It is a more difficult matter to percuss an adult chest for bronchial glands than a child's. In the adult chest we must take into account development due to occupation, habits, etc. On the other hand, children show a so-called physiologic dulness at the right apex which may prejudice one in favor of bronchial glands. In fluoroscopic examinations a child's chest gives a greater opportunity to discover bronchial glands than an adult's. Still, of 145 patients, only twenty-seven with thoracic glands were below 20 years of age. Another group of cases, which is not included in this present paper, but which may have bearing on the consideration of bronchial or mediastinal glands, is that in which there is obscurity of the space behind the heart and aortic vessels. On account of the more questionable nature of this obscurity, these cases were not investigated.

Sukiennikow states that the prevailing position of the lymph glands is anterolateral, especially the tracheobronchial group, and gives this as a reason for the difficulty that is encountered in diagnosing them, when enlarged, by percussion. Osler's statement is broader still. He says that unless the glands are large enough to cause compression of lung tissue, he doubts whether the ordinary bronchial adenopathy ever can be determined by percussion in the upper interscapular region.

One other difficulty was the inability to tell in certain obscure cases whether a gland was single or whether two or three were adherent. From our anatomic knowledge, it is very likely that in the case of bronchial glands there were several instead of one.

Usually, where the glands appeared on both sides the apices were also affected, and in a large number of questionable cases of tuberculosis the glands were either single or on one side.

The conclusion is that in a number of cases the glands were enlarged where tuberculosis was either not present or suspected, and were of sufficient importance to either produce certain physical signs confused with tuberculosis or were the probable cause of a tuberculin reaction.

CONCLUSIONS

1. Enlarged glands occur more frequently on the right side than on the left.
2. Enlarged glands may cause the signs which are often considered as those of early apical tuberculosis. This has been explained in anatomic and physiologic terms.
3. Enlarged glands occur in both tuberculous and nontuberculous patients and probably occur as frequently in adults as in children.
4. Positive tuberculin reactions may, therefore, in negative tuberculous cases, be due to enlarged glands in the mediastinum, etc., when apical signs are not present.
5. The results of this investigation demonstrate the common failure to diagnose the presence of mediastinal or bronchial glands, and show the importance of emphasizing the more careful examination of so-called early tuberculosis cases.

In addition to the articles previously cited the following references will be found of interest:

Bosman: Nederl. Tijdschr. v. Geneesk., No. 15, 1910.

Walsh: Tr. Nat. Assn. Study and Prev. of Tuberc., Sixth Ann. Meet., pp. 166, 324.

2 Arlington Street.

IMPROVED TECHNIC OF THE THIERSCH GRAFT FOLLOWING THE RADICAL EAR OPERATION *

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In the preliminary report of the improved technic of the Thiersch graft following the radical mastoid operation,[1] I reported a series of eighteen cases, in which graft was applied four days following operation, and said that never before had such a series of cases been brought to healing in such a short time and that never before had the hearing been so uniformly good (Table 1).

I shall here report a series of twelve cases in which I operated. Graft was applied at the time of operation. This report will be even better than the former, besides eliminating a second operation that consumes almost as much time as the original mastoid operation, while the original operation is only lengthened about fifteen minutes. This of itself, I consider a great boon for the procedure; in fact, it makes the radical ear operation a simple, concise and precise operative procedure, attended with no risk to life whatsoever, providing the cochlea and canals are intact (Table 2).

The further improvement of the technic will consist in a more thorough removal of the mucous membrane of the tube, the mucous membrane of the inferior part of

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* Read in the Section on Laryngology, Otology and Rhinology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

[1] Ann. Otol., Rhinol. and Laryngol., March, 1911.

the tympanic cavity, and the cutting away of the inferior bony meatus, so that it is absolutely on a plane with the floor of the tympanic cavity. I shall repeat the detailed technic of this operative procedure.

Every individual cell is destroyed until hard bone is encountered, or the dura, sinus or nerve uncovered. This final destruction of cancelous bone is best accomplished by me with a hand burr; it can be done with a burr driven by electricity, however, I prefer such burr for the bone of greater density. It is very essential that all the uneven surfaces be made perfectly smooth.

The outer part of the bony meatus must be removed sufficiently to be on a horizontal plane with the floor of the tympanic cavity. The posterior bony wall must be cut down to the floor of the newly-made bony meatus. By this procedure more room is gained and the pocket which was formed by the tympanic cavity has been eliminated. In the removal of the posterior bony meatus and facial spur, great care must be exercised in not injuring the facial nerve. This is best avoided by chiseling the wall away with large chisels and working parallel to the nerve, so that in the event that the nerve is uncovered, it would not be cut. This particular point will enable the operator to remove more bone than any other with more safety to the facial; in fact, the facial will not be cut by an experienced operator.

TABLE 1.—EIGHTEEN CASES OF RADICAL EAR OPERATION BY IMPROVED THIERSCH GRAFT

Case No.	Age	Sex	Discharge	Operative Findings	Hearing Before and After Operation: Before	After	Duration of After-Treatment (weeks)*
104	26	F.	Childhood.	Cholesteatoma.	Whisper, 6 ins.	Whisper, 6 ft.	Six.
105	14	M.	Two yrs.	Cholesteatoma.	Speech, water, 6 ft.	Speech, water, 15 ft.	Four.
107	28	M.	Childhood.	Cholesteatoma.	Whisper, 3 ft.	Whisper, 3 ft.	Six.
108	19	F.	Childhood.	Cholesteatoma.	Whis'r, water, 12 ft.	Whis'r, water, 26 ft.	Four.
109	10	M.	Childhood.	Cholesteatoma.	Whisper, 1 ft.	Whisper, 26 ft.	Four.
110	14	M.	Childhood.	Cholesteatoma.	Whisper, 1 ft.	Whisper, 25 ft.	Four.
111	25	M.	Two yrs.	Cholesteatoma.	Whis'r, paper, 3 ins.	Whisper, 6 ft.	Six.
113	33	F.	Childhood.	Cholesteatoma.	Whis'r, paper, 3 ft.	Whis'r, paper, 20 ft.	Three.
115	26	M.	One yr.	Cholesteatoma.	Whis'r, paper, 15 ft.	Whis'r, paper, 26 ft.	Four.
117	16	M.	Childhood.	Caries.	Whis'r, paper, 1 ft.	Whis'r, paper, 6 ft.	Four.
118	12	M.	Five yrs.	Caries.	Speech, 3 ft.	Whis'r, chair, 25 ft.	Three.
119	16	M.	Two yrs.	Caries.	Whisper, 25 ft.	Whisper, 3 ft.	Four.
120	9	M.	Seven yrs.	Cholesteatoma.	Whisper, 1 ft.	Whisper, 6 ft.	Three.
121	29	F.	Childhood.	Caries.	Whisper, 6 ins.	Speech, 1 ft.	Three.
122	29	F.	Childhood.	Caries.	Whisper, 3 ft.	Speech, 3 ft.	Four.
123	4	F.	Three and one-half yrs.	Cholesteatoma.		Good.	Four.
124	30	M.	Childhood.	Cholesteatoma.	Whis'r, chair, 2 ft.	Whis'r, chair, 15 ft.	Five.
125	18	F.	Ten yrs.	Cholesteatoma.	Speech, 2 ft.	Whisper, 25 ft.	Four.

Duration of after-treatment:

In 4 cases 3 weeks.
In 10 cases 4 weeks.
In 1 case 5 weeks.
In 3 cases 6 weeks.

Hearing, following operation, for whisper:

In 6 cases 25 feet or more.
In 3 cases 15 feet or more.
In 3 cases 6 feet.
In 2 remained the same.
In 1 case could not be measured, but good.

* The duration of the after-treatment dates from the day of the radical mastoid operation and not from the day of the graft, which was four days later.

TABLE 2.—TWELVE CASES OF RADICAL EAR OPERATION

Case No.	Age	Sex	Duration	Operative Findings.	Hearing: Before	After	Duration of After-Treatment (weeks)
127	21	M.	Childhood.	Caries.	Whisper.	Improved.	Three.
128	21	M.	Childhood.	Caries.	Whisper, 3 ft.	Improved.	Two.
129	31	M.	Childhood.	Caries.	Whisper, 6 ins.	Whisper, 25 ft.	Ten.
130	38	M.	Five yrs.	Caries.	Whisper, 6 ins.	Whisper, 18 ft.	Six.
131	20	F.	Childhood.	Caries.	Whisper, 3 ins.	Remnants.	Four.
132	46	M.	Childhood.	Caries.	Whisper, 2 ins.	Whisper, 15 ft.	Four.
133	34	F.	Fourteen yrs.	Negative.	Whisper, 3 ft.	Whisper, 26 ft.	Three and one-half.
134	17	M.	Eight yrs.	Caries.	Whisper, 6 ins.	Whisper, 6 ft.	Three and one-quar.
135	9	M.	Three yrs.	Caries.	Whisper, 1 in.	Whisper, 4 ft.	Three and one-half.
136	7	F.	Infancy.	Caries.	Whisper, 3 ft.	Whisper, 25 ft.	Four.
137	17	M.	One yr.	Caries.	Whisper, 6 ft.	Whisper, 26 ft.	Three.
138	9	M.	Childhood.	Caries.	Whisper, 3 ft.	Not made.	Three.

The mucous membrane of the tympanic cavity must be entirely removed. I literally mean that after a very thorough inspection, none can be detected, at this place it will be necessary in most cases to use a hemostatic agent of some kind, as hot saline solution, hydrogen peroxid or epinephrin. Most careful attention must be directed to the tube in order to remove the mucous membrane thoroughly.

The tympanic wall should be so thoroughly removed by chisel and made smooth by burrs, so that the small searchers of Jansen's will not be arrested.

Everything said so far, while absolutely important in every radical operation, is much more important when Thiersch grafts are to be applied, as any infection that may remain in the bone will ultimately destroy the graft and one will fail to accomplish what he set out to do.

The Neumann plastic should be made in preference to all others for this particular procedure, the upper and lower flap sutured in place and the point of the V sutured to the auricle. The sutures to be used in holding the V part of the plastic should be catgut. The sutures for the upper and lower flap had better be catgut, as the use of other sutures, if allowed to remain, may or may not cause trouble in the after treatment of the case.

At this time I use hot saline solution as a hemostatic agent inspecting the cavity from time to time; finally, to reassure myself, I use peroxid of hydrogen several times. When I am satisfied beyond a question of doubt that everything is away, I put in gauze saturated with epinephrin (P. D. & Co.), this gauze is held in the cavity under pressure by an assistant, while the grafts are being prepared. At the time I begin my preparation of the ear plastic, the nurses are preparing the leg or part from which the grafts are to be taken. In this preparation, mercury bichlorid has never been used. Sterile salt solution used in excess, following all the other aseptic procedures.

I try to get about three or four grafts ½ inch wide by 1½ inches long, and some smaller ones, ¼ inch by ½ inch. Some of the grafts may be lost in preparation or in applying them.

The Jansen spatula is used, grafts are taken from the razor directly to the spatula, all edges straightened and put aside for use. When grafts are in readiness the epinephrin tampon is removed from the ear. The cavity will be found to be absolutely dry and if not, more epinephrin must be used; the cavity must be free from oozing blood or the grafts will not adhere.

The first graft is fastened with a searcher into the tube, bringing it out over the floor of the tympanic cavity posteriorly; second superior to the first, brought back over facial into mastoid cavity. The third usually covers the remaining wall of the attic and antrum. The three which have been used are the larger ones. The uncovered areas that are left are covered by the remaining grafts, the one being selected that will cover the denuded area best. Small pledgets of cotton are now used to fix the grafts; they must be so small that they do not touch either surface while being put in place The first one is put over and into the tube, the second firmly applied to the posterior inferior quadrant, the next over the stapes and so on until all the grafts are held well in place, so they will not be materially disturbed when a dry tampon is introduced. The size of this tampon will correspond to a piece of gauze 2 or 4 inches square. After the dry gauze, a similar piece of gauze is saturated with 0.5 per cent. solution of phenol (carbolic acid) in paraffin oil, U. S. P. (especially sterilized in 10 c.c. ampoules),[1] and packed within the mastoid cavity; after this a similar piece, larger or smaller as the occasion may demand, is used to fill the entire cavity made by the operation. The posterior wound is now closed in the usual manner. It will be found that an additional tampon by way of the meatus will assist materially in holding the plastic in the way intended, resulting in a very large meatus with cut surfaces all within the ear. This materially adds to the comfort of the patient, as well as preventing a contracted meatus. The usual outside dressing is used. The ear tampons are removed on the fourth day. If there is any difficulty or pain in the removal of the tampons, contrary to the ordinary teachings, hydrogen peroxid can be used in excess to soften and loosen them; this procedure will also aid in getting rid of the blood and stop bleeding, so that the small cotton fasteners that were put in to hold the grafts in place can be seen and taken away. I wish to add that it is quite important to know the number of small cotton balls that have been put in the ear to hold the grafts, otherwise one may be left which will cause trouble sooner or later.

In 50 per cent. of the cases one will look into a white cavity; in fact, all of them are white if one takes the time to stop the bleeding that comes from the inner surface of the soft parts which have been sutured and could not be covered with graft.

This is the improved technic of the Thiersch graft in the radical ear operation.

In fact, a graft never adheres to the tampons to be torn from its attachments. In some of the cases, the outer layer of epidermis will loosen in ten days or two weeks after they have been applied; they will always leave a delicate epidermis that will harden in a very short time. I hardly know how to account for the fact that, in some cases, the entire graft remains in place, while in others the outer layer comes away. The only explanation that I can offer is that, in some instances, the graft is too thick. This does not seem to be serious, however, as the cases heal in about the same time. Occasionally it will happen that granulation tissue makes its appearance when the edges of the graft are not in perfect apposition. They are very easily destroyed with the ring knife. At the following dressing, the denuded area will be completely dermatized.

Occasionally, excessive granulation tissue makes its appearance in the region of the plastic. This is removed with curet and packed tight with gauze saturated with sterile liquid petrolatum. Contrary to the teachings of to-day, bichlorid of mercury is used to irrigate the cavity. This is necessary where there is an unusual amount of pus or odor from secretion. In other instances where there is more debris than should be, I always irrigate with the intratympanic cannula and under inspection, so that the force of the stream is directed to the particular spot that requires attention. I also irrigate with normal salt solution and boracic acid.

As has been said before, the oil dressing is removed in four days, or sooner if necessary. In two days a second dressing is made which includes an irrigation of bichlorid of mercury, 1-3000, and from this on, dressed daily until complete recovery. The particular reason for the bichlorid at the second dressing is to remove disagreeable odor, debris, or to see with more accuracy that all the cotton tampons have been removed.

The final procedure of every dressing is a thorough drying of the ear. After this, pulverized boracic acid is blown into the ear, single small pieces of gauze, ½ inch square, introduced into the ear, with a small roll of gauze fitting snugly into the outer meatus. As a rule, the bandage is left off in from ten to twelve days after the operation.

The majority of this series of twelve cases have been more or less complicated because of prior operations or existing labyrinth complications that added somewhat to the risk of operation. Some of the cases are quite out of the ordinary. In many of the cases, healthy dura was uncovered by the chisel and grafts used as described. In two instances dura with a granulating surface presented, the grafts covered everything but the granulating surface of the dura.

In conclusion, I wish to state that all cases of chronic suppurative otitis media (chronic after one year duration, nose and throat in order) are dangerous to the individual; all patients should be operated on, and all will recover if properly operated.

Second, the hearing will be improved in all cases, providing that the internal ear is intact as shown by the tuning fork examination.

Third, there is no danger associated with the operation provided that the labyrinth is intact. This latter statement is based on approximately two hundred radical mastoid operations.

CASE REPORTS

CASE 127.—*Patient.*—A man, aged 21, a laborer, had had discharge from the right ear since childhood. At the age of 15 the ear was operated for the first time, and he had three different operations since. He came to me with an acute exacerbation of a chronic suppuration, pain over the whole side of the head, especially over tip of the mastoid. For three weeks previously he had had repeated attacks of vertigo.

Examination.—Head on diseased side was sensitive to touch and especially over the tip of the mastoid. Temperature 101 F., surface temperature of mastoid more than that of other side. The mastoid cavity was filled with connective tissue, foul smelling pus and debris; denuded bone detected by a probe. Patient could not hear whisper, except with the 7-foot hearing-tube. Weber to the opposite side. C^1, C, c^4, all negative. Watch on bone, negative. Neumann's alarm apparatus, positive. Intense vertigo, tinnitus, spontaneous nystagmus to the opposite side. Caloric reaction, positive; the cold water was continued for quite a while before the nystagmus was increased. Fistula symptom, negative. From the findings it must be concluded that the cochlea and canals were intact.

Operative Findings.—Large mass of organized connective tissue filling the greater part of the cavity made by previous mastoid operations. The whole tip of the mastoid was carious, caries of the zygomatic cells, as well as the overhanging walls of the attic and antrum. My findings offer evidence that the last radical mastoid operation was not sufficiently complete to hope for a cure. Neumann plastic, grafts applied in the usual way. Dressing removed in six days, every graft adherent. Eleven days after operation every graft came away, leaving a very delicate epidermis which became white in a very short time. Between the grafts were small granulating areas that were covered in a few days by epithelium from the graft.

This patient was practically well two weeks after operation; however, there was a serous discharge that continued for a few days longer. I think this discharge was due to the sensitiveness of the new epidermis.

Hearing improved, absolutely dry in three weeks.

Case 128.—*Patient.*—A man, aged 21, laborer, had had a discharge from ear since childhood, and had three mastoid operations, the ear always having discharged. About one week before I saw him, he began to complain of pain over the whole side of the head, and had such intense vertigo that he had fallen in the street three times during the last week.

Examination.—The whole side of head painful to pressure, extremely painful over tip of mastoid. Temperature 100 F.; surface temperature of the mastoid increased over the other side. Scar of previous operation; foul, offensive discharge, large mass of organized connective tissue, uncovered bone discovered by a probe. Weber to diseased ear. Whisper (paper), 3 feet. Rinné, negative. Schwabach shortened. Negative for low forks, positive for high. Watch on bone, positive. Vertigo. No spontaneous nystagmus. Caloric reaction positive, very much exaggerated with only a small amount of water (hypersensitive). Fistula symptom, negative.

Operative Findings.—Overhanging attic and antrum walls carious. Polypi in antrum, horizontal canal stood out quite prominently; considerable of the bone about it had been destroyed by caries; large amount of connective tissue and additional caries of the tip of mastoid.

Neumann plastic, grafts; cavity dressed in five days, all grafts found adherent. Eight days after operation one graft came away, leaving a delicate pinkish-white epidermis. Case entirely dry fifteen days following operation. Hearing improved—as to how much I cannot say, because the patient left the city during the next few days without my permission.

I attribute the rapid healing in these two cases to the fact that the patients had been operated on before and were not cured; from this fact the bone was oversupplied with blood which in turn nourished the grafts very quickly.

Case 129.—*Patient.*—A man aged 31, capitalist, whose ears had been discharging since childhood, during the year previous to operation had felt pain back of right ear, with increasing severity. For the last three years he had had headache on diseased side of the head; during the last three months, vertigo following headache had kept him in bed for twelve hours at a stretch. During this time he had been taken home in a conveyance repeatedly, because of intense vertigo. The patient said that the pictures on the wall would jump; when eyes were closed he would feel the eyes jumping.

Examination.—Sensitive over tip of mastoid; entire destruction of drug membrane; hypertrophied tissue covering promontory; no great amount of pus, not much odor. Whisper, 6 inches. Weber to this ear. Rinné, negative. Schwabach, short. C^1, positive. C, negative. c^4, positive. Watch on bone, positive. Vertigo and tinnitus, spontaneous nystagmus, negative. Caloric reaction, positive (hypersensitive). Fistula symptom, negative.

Operative Findings.—Former fracture across mastoid and into attic and antral wall, making same irregular. This does not appear in the history at all (confirmed later by question). Sclerosed mastoid, sinus well forward, dura size of quarter uncovered. Facial uncovered by caries, horizontal canal stood out quite prominently surrounded by spicules of carious bone, caries being very deep posteriorly. Neumann plastic and primary graft.

Following operation the patient had considerable vertigo, nystagmus and headache; in fact he was not quite free from it until the primary dressings were removed which was on the sixth day. All grafts were intact. Fourteen days after operation graft over exposed dura came away leaving the characteristic pinkish-white appearance; no vertigo, nystagmus or headache at this time. About ten days following operation a granulation appeared posteriorly, just under the facial nerve, on more careful investigation a fistula was found that was quite deep, this was repeatedly curetted and touched with silver nitrate in substance until it finally healed in ten weeks. The ear was entirely epidermized at the end of three weeks with the exception of the fistula; the hearing at that time had been increased from a whisper at 6 inches to a whisper at 25 feet. The hearing at the time he was declared well was 25 feet.

I mention this case more or less in detail to show why it required so long to heal. Had I been sufficiently careful to find this fistula, the patient would have been entirely well in three weeks. It accentuates the very points I wish to emphasize, namely, that complete search must be made, and so long as the Jansen sound is arrested the operation is not complete.

Case 130.—*Patient.*—A man, aged 38, laborer, had had intermittent discharge from the ear for the last three years; three weeks before operation he began to have pain in the ear and had frequent dizzy spells, though he never fell. A swelling appeared below mastoid about one week before I saw patient.

Examination.—No pain on pressure or percussion. Swelling below tip of mastoid (Bezoldt's mastoiditis), large granulating mass was filling up meatus; offensive discharge. Whisper 6 inches. Weber to both ears. Rinné, negative. No spontaneous nystagmus. Caloric reaction, positive.

Operative Findings.—Sclerosed mastoid; small blackened areas throughout his sclerosed mass of bone; dura uncovered. From the abscess cavity the whole tip could be outlined. Neumann plastic. graft. Hearing before, whisper 6 inches; after, 18 feet.

I cannot say why healing was so slow in this case.

Case 131.—*Patient.*—A woman, aged 20, stenographer, had had discharge from the ear since childhood, and repeated attacks of facial erysipelas; also repeated attacks of vertigo for several years past.

Examination.—No pain or sensitiveness on pressure or percussion; entire destruction of membranum tympani; small granulation protruding from attic. Whisper, 3 inches. Weber to opposite ear (marked adhesive process in the other ear). Rinné, negative. C^1, positive. C, negative. c^4 positive. Watch on bone, positive. Vertigo, positive. Tinnitus, positive. Spontaneous nystagmus, negative. Caloric reaction, positive. Hearing 7-foot tube, whisper positive.

Operative Findings.—Caries of attic and antrum; dura uncovered, the size of two thumb-nails. Fistula of the oval window with a blackened margin about it, which demonstrates that it has existed for some time; a good-sized probe was introduced into the fistula. Neumann plastic, grafts in usual manner and closed.

First day after operation, everything satisfactory; second day, some vertigo. Third day, vertigo, nystagmus to the opposite side, vomited five times. Fourth day, dressing removed, not so much nystagmus, patient vomited twice. Grafts all adherent.

During the four days, the patient had no fever, the vertigo and nystagmus disappeared gradually. The patient left the hospital in ten days, well in twenty-eight days.

Observations.—My only careful examination of this patient was made nine months prior to operation. From the examination as made at that time, the cochlea and canals were intact, so that a radical ear operation would not have been attended with risk to the patient's life; but when I found a fistula and an old one at that, I felt sure there would be induced an acute exacerbation of the old labyrinth suppuration. However, the patient made an uninterrupted recovery. This patient should have had an operation on the labyrinth at the time of the ear operation, or no operation at all.

I relate this case in detail to accentuate the importance of repeated examinations, should the case not be operated within a few days.

At the time of examination the patient heard a whisper 3 inches; this was much reduced because of the opening of the vestibule. She still hears on this side but it is of no practical use. Had my labyrinth instruments been accessible, I would have destroyed the labyrinth at once; as they were not, I concluded the operation with a skin-graft. The patient made a good recovery which can be attributed to good luck rather than to modern otology.

Case 132.—*Patient.*—A man, aged 46, a structural iron worker, had had discharge from both ears since childhood, had had pain repeatedly back of the ear, on both sides; attacks of vertigo increasing in frequency.

Examination.—Tenderness over the whole side of the head, especially over the mastoid, exquisitely sensitive over the tip. Temperature 101 F. Increased surface temperature of mastoid when compared with the other side. Pupils widely dilated and sluggish. The ear was filled with a mass of granulation tissue, foul discharge. Whisper, 2 inches. Weber to bad ear. Rinné, negative. Schwabach, normal. C^1, positive. C, negative. c^4, negative. Watch on bone, positive. Vertigo and tinnitus, positive. Spontaneous nystagmus, negative. Caloric reaction, positive. Fistula symptom, negative. Seven-foot hearing-tube whisper, positive.

Operative Findings.—Sclerosed mastoid, caries of attic and antral walls. Neumann plastic, graft and closed.

Remarks.—Skin-graft spatulæ were forgotten and I applied the grafts from surface of round chisels. Patient entirely well twenty-eight days after operation. Whisper before operation 2 inches, after, 15 feet.

Case 133.—*Patient.*—A woman, aged 34, was hooked by a cow when 3 years of age; the ear and scalp were severely injured. The ear discharged from this time for fourteen years, since this; two or three times a year it discharged for a day or two. Never had pain back of the ear or in the ear. When the ear stopped discharging, seventeen years ago, she began to have vertigo which lasted for some two years. There was no vertigo for a period of four or five years. Since that time there had been more or less at intervals, lasting as long as five days. For the last year she had scarcely been free from vertigo; there had been so much and it had been so severe that it has incapacitated her as a housewife. At times so dizzy she would fall; vertigo and attacks of vomiting which have lasted for several days. Intermittent tinnitus began at 14, for the last year preceding operation it was so severe that it annoyed patient very much, at times explosive in character.

Examination.—Marks of injury about ear and scalp, not sensitive to deep pressure or percussion. Drum membrane intact, hammer very much retracted, membrane shows marks of previous suppuration. Whisper, 3 feet. Weber to diseased ear. Rinné, negative. C^1, positive. C, positive. c^4, positive. Watch on bone, positive. Vertigo and tinnitus as described in history. Spontaneous nystagmus to the opposite side. Caloric reaction, positive. Equilibrium disturbances, positive. Fistula symptom, negative.

Conclusions.—From the fact that the discharge from the ear followed an accident, I was led to believe that there was either a possible fracture with a spicule of bone pressing on one or the other of the canals, or a possible mass (bony) pressing or pinching the membranous labyrinth, or lastly, an erosion induced by the chronic suppuration, such an erosion would be increasing in depth or magnitude. Such a picture could easily be drawn when one remembers that the patient said that she had a discharge from her ear two or three times during the year preceding operation and that it would last but a few days.

From this reasoning I concluded that a radical mastoid operation would relieve her of this distressing vertigo. Cerebellar tumor had been excluded by Drs. Newmark, Lennon and myself, as the only other condition that would be likely to produce such symptoms.

Operative Findings.—No fracture of temporal bone (more detailed history, discharge from ear started before accident). Sclerosed mastoid, otherwise healthy macroscopically, with the single exception that the facial nerve was uncovered by caries anteriorly, and that at this particular place there was an erosion or excavation. This latter condition was found only after very careful search; at the time of operation, I did not think it sufficient to cause so much trouble. However, it proved to be correct and the day after operation the patient said her vertigo was less.

Neumann plastic, grafts. Uninterrupted recovery. Hearing before operation, whisper 3 feet; after operation, whisper 26 feet. Healing, twenty-four days. Vertigo and spontaneous nystagmus entirely gone.

Case 134.—*Patient.*—A school-boy, aged 17, had had a discharge from the ear for the last eight years. One year ago had pain deep in ear; no headache or vertigo.

Examination.—No pain on deep pressure or percussion. Complete destruction of drum membrane; foul, offensive discharge. Whisper, 6 inches. Weber to good ear. Rinné, negative. Schwabach, normal. C^1, positive. C, negative. c^4, positive. Watch on bone, negative. Tinnitus, positive. Vertigo, negative. Slight spontaneous nystagmus. Caloric reaction, positive (hypersensitive). Fistula symptom, negative. Seven-foot hearing-tube, positive.

Operative Findings.—Caries of the attic and antrum. Neumann plastic, graft, closed.

Hearing before operation, 6 inches. After operation, 6 feet. Duration of after treatment, twenty-four days.

Case 135.—*Patient.*—A school-boy, aged 9, had had a discharging ear for several years past; never had pain back of ear or deep in ear.

Examination.—Painful over the tip of mastoid, granulation tissue filling meatus, foul, offensive discharge. Whisper, 1 inch. Weber to opposite ear. Rinné, negative. C^1, positive. C, positive. c^4, positive. Watch on bone negative. Vertigo and tinnitus, negative. Spontaneous nystagmus, positive. Caloric reaction, positive (hypersensitive). Fistula symptom, negative. Hearing-tube whisper, positive.

Operative Findings.—Attic and antrum were full of granulation tissue, no mastoid cells. Neumann plastic, graft, closed.

Hearing before operation, whisper 1 inch, after operation, 4 feet. Twenty-eight days, cured.

The reason there is not more improvement in this case is easily understood when one examines the fork findings prior to operation.

Case 136.—*Patient.*—A girl, aged 7, had had a discharge from her ear "on and off" since 1 year old; six months previous to operation had an acute exacerbation, also considerable pain back of ear at that time.

Examination.—Whisper, 3 feet. Weber to bad ear. Rinné, negative. Schwabach, normal. C^1, positive. C, positive. c^4, positive. Watch on bone, positive. Vertigo and tinnitus, negative. Spontaneous nystagmus, negative. Caloric reaction, positive. Fistula symptom, positive. Hearing-tube, positive for whisper. Not painful on deep or superficial pressure; great amount of offensive discharge from ear; bulging of the posterosuperior wall, mass of granulations coming from above.

Operative Findings.—Pneumatic mastoid entirely destroyed by caries. Pyogenic membrane the size of a half dollar which pulsated when uncovered, looking very much like diseased dura. This cavity was almost as large as half an English walnut. The membrane must have been one-sixteenth or one-eighth of an inch in thickness and was more or less dense. The under part of the cavity was the dura mater which was covered by small granulations. The dura was uncovered until healthy dura made its appearance. Neumann plastic; grafts covering all but the diseased dura, closed.

Hearing before operation, whispering 3 feet, after operation, whisper 25 feet. Duration of after treatment twenty-eight days.

Case 137.—*Patient.*—A school-boy, aged 17, had had a discharge from ear for three years previously.

Examination.—No tenderness on percussion or pressure over mastoid. Entire destruction of tympanic membrane. Small polypi coming from above; partial destruction of bony attic wall. Whisper, 6 feet. Weber to diseased ear. Rinné, negative. Schwabach, normal. C^1, C, c^4, positive. Watch on bone, positive. Vertigo and tinnitus, negative. No spontaneous nystagmus. Caloric reaction, positive. Fistula symptom, negative.

Operative Findings.—Caries limited to the walls of the antrum. Dura covered by caries, the size of two thumb-nails, in the region of the attic. Neumann plastic, grafts over all, closed. Hearing before, whisper 6 feet, after, whisper 26 feet. Complete dermatization twenty-one days.

Case 138.—*Patient.*—A school-boy, aged 9, had had discharge from left ear since infancy.

Examination.—Not painful on deep pressure or percussion over the mastoid. Foul-smelling discharge; entire destruction of drum membrane. Whisper, 3 feet. Weber to non-suppurating ear. Schwabach, normal. C^1, C, c^4, positive. Watch on bone, positive. Vertigo and tinnitus, positive. Spontaneous nystagmus to opposite side and same side, more to opposite side. Caloric reaction, positive. Equilibrium disturbances negative. Fistula symptom, negative.

Operative Findings.—Caries extending to tip of mastoid. Neumann plastic, grafts, closed in usual way. Dressed in four days, every graft adherent.

More nystagmus to either side than he had before operation. *Did not speak of vertigo.* Left hospital in eight days.

ABSTRACT OF DISCUSSION

Dr. Hugo Frey, Vienna, Austria: The after-treatment of surgical operations is very important and any advance along that line must be welcome to us. Many do skin-grafting after the operation; very often, of course, not primarily but later on. In the clinic we have given up skin-grafting in these cases, because the results did not seem to be very satisfactory. Since I have been in this country I have seen a number of cases, especially in the hands of Dr. Welty, and I am induced to try skin-grafting again after the method advocated by him, because his cases have impressed me very much. Many of his patients show good hearing. It seems to me that the problem of the radical operation now is practically solved. But the question of the function after the radical operation has not been so well settled, as it seems to depend largely, not on the scars on the outer wall, but on the growth of the granulation tissue on the inner wall. Often we find considerable production of scar tissue in the inside as the result of operative work. It seems to me better to simplify matters by confining the healing process to the outer labyrinthine wall. The patients operated on in this way look better than when treated with simple plugging. It has been recommended to give up tamponading, but I must say the results then have not been so successful. The method of immediately tamponading the cavity with the patient's own tissue seems to be the method which will give the more favorable result and shorten the time, in comparison with the other methods. I find Dr. Welty did tamponading the first time only. It may be for this reason that the hearing function is so favorable after his operation.

Dr. H. B. Graham, San Francisco: My results in skin-grafting are about the same as those of Dr. Welty. The hearing in my patients is about the same as he has recorded. Alexander and Mackenzie, in Vienna, some two or three years ago made an examination of their patients in the polyclinic, as far as hearing was concerned. Whereas it was formerly thought there was a certain percentage of cases in which the hearing was made better by operation, they found that universally a year afterward the hearing was worse than before the operation. Dr. Welty has a good many cases in which he operated over a year ago, so that the lapse of time has evidently had no influence on the hearing in his patients, and he is to be congratulated on that point. Not only has the hearing been made better, but it has remained better. I think the after-treatment with the skin graft is just as long drawn out as the after-treatment in the other procedure. The patient is called healed in two or three weeks, but he has to be followed up for a long time after the operation. The tube is the responsible factor, I think, in a good deal of this delay in healing after a skin graft. Even after the healing of the cavity with epidermis, there is often still a discharge of pus, which comes from the tubal region. If the tube is washed out for two or three months the patient will eventually recover. But we must keep track of these patients for a month or possibly a year or even longer.

Dr. Henry Horn, San Francisco: The results of Dr. Welty are exceedingly interesting and the value of those results are just in proportion as they can be obtained by other men. The more witnesses the more convincing the conclusions appear. Dr. Graham has reported his cases. I have had, since I returned, only twelve cases of radical operation in which I could use skin-grafting and my results were uniformly good. The question arises, why are these results so good when men all over the world have tried skin-grafting only to give it up. Surgeons have already used petrolatum and oil and the application of pieces of cotton and various other methods somewhat similar to this have been applied in skin-grafting, but it seems that in this particular technic there is a fortunate combination and unless the operation is done exactly as described in the paper you will not get the same results. On looking into the wound after operation, it looks like an aseptic operation. The wound is practically healed when we take off the dressing. Of course, I do not agree with Dr. Graham at all when he says that the after-treatment is as difficult with the skin-grafting as it is otherwise. That is perfectly absurd. In fact, that is the most valuable part of this operation. One who has had to treat a nervous patient for a number of weeks by the older method can appreciate what a boon this technic is in the after-treatment.

There is one point yet to be solved, which would make this procedure an ideal one. In a few of my patients the entire cavity was practically healed at the first dressing. The exception is always in the region of the tube. In spite of most careful curettement with the Yankauer instruments, the closure of the tube is not always certain. I doubt very much if the grafts take in this cone-shaped cavity. On the other hand, I doubt very much if a graft could be spread across the cavity, thereby closing it off from the rest of the tympanum. My impression is that healing in this locality takes place by the filling in of granulations and the epidermization from the surrounding grafts. If this were not so and the technic was perfect, we should get a complete healing every time in about two weeks.

Dr. J. F. Barnhill, Indianapolis: I want to congratulate Dr. Welty on his results. They are certainly better than anything I have obtained. In regard to the hearing, granting that the grafts stick, I cannot understand why these patients should have better hearing than after natural epidermization. We know that after natural epidermization the patients do not hear so well as before the operation. Dr. Welty speaks of doing a smooth, clean operation and in that I agree with him, but it is often impossible to remove all of the disease. It is in my opinion unwise to guarantee this in any case. I have a specimen in which the cells go one-half inch deeper than the facial nerve and we know that the diseased cells often extend deep into the petrous portion of the temporal bone.

Dr. M. W. Fredrick, San Francisco: The brilliant results which Dr. Welty achieves have impressed me also, but I fear that, as in many other cases, their brilliancy will exceed their permanence. I object to the use of the word "cured" in this connection. I do not consider a patient cured until he can leave his physician and go wherever he chooses. Recently I have seen two or three patients operated on according to Dr. Welty's method, although they were not operated on by Dr. Welty. In all of these cases the resultant cavity was filled with a mass of débris and cholesteatomatous-like bodies that were removed with some difficulty. When a tissue that is foreign to the locality is used in repair one must expect these masses to form and to require attention several times a year. I prefer the somewhat more tedious process of allowing the cavity to obliterate itself, then the patient may be allowed to go at will.

Dr. Fred Stauffer, Salt Lake City: I would like to ask whether Dr. Welty selects his cases for this operation, and, if so, what kind of cases he selects. In our part of the country we have a great many cases of cholesteatoma, in which the dura and lateral sinus are often exposed, and in removing the diseased bone we often find that the facial nerve is exposed. In such cases the method Dr. Welty uses, of employing hydrogen peroxid and hot solutions, would cause paralysis of the facial nerve. It seems to me it would be difficult in some of these cases to make a skin-graft. I would like to know how he would treat such patients. I do not think his method would be applicable to all cases requiring operation.

Dr. E. C. Sewall, San Francisco: Before I heard Dr. Welty's communication before the San Francisco eye, ear, nose and throat surgeons some months ago, I had been using primary skin-grafts for a considerable length of time. At that meeting Dr. Welty made the statements he has made here, except that at that time he was doing his skin-grafting secondarily, and insisted that it should be done on the fourth day and never on the third or fifth. That evening I criticized his paper, because I felt that the readministration of an anesthetic is not desirable if it can be avoided. Since then Dr. Welty has adopted the primary skin-grafting. I have used the small pledgets which he recommends. He says that they should be counted and that is very necessary, but it is difficult to remove them by count, because they stick together and it is often difficult to know whether you have removed one, two or three of them. I have sometimes left some of those plugs and removed them later, to my chagrin. I found once after the third day a beginning facial paralysis. There was no paralysis immediately following the operation. It developed on the third day and was almost complete. On searching the cavity and removing some hidden pledgets, the paralysis gradually cleared up. There are certain objections to the applications of the grafts. I consider it absolutely unsurgical to do what Dr. Welty says, namely, to cover the exposed dura with skin-grafts. We all know that safety, after exposure of the dura, depends on the completeness of the exposure. If we make a puncture here we make a larger opening for safety. I am quite in sympathy with Dr. Barnhill's entire speech, in regard to facial paralysis, and more in sympathy with the point of view that there is danger in operating on a chronic suppurating middle ear. We will all get deaths if we operate often enough. The use of the cotton pledget is a difficulty. It is the best we have, but it seems to me it would be better if we had something else to use in applying the skin-grafts. I have even thought of something along the line of bismuth paste.

Dr. C. F. Welty, San Francisco: Of course, it is easy to find objections, but I have considered the various points brought up to-day and no doubt shall be able to answer the criticisms, if not in accordance with your notions, at least in accordance with my own. The only thing I have considered is the oiled dressing. In quite an extensive article Alexander and Mackenzie showed that all their patients have diminished hearing after one year. Now, the two series that I have shown here comprise thirty patients operated on in the last year, and in my report next year I expect to analyze the cases. I have patients who hear a whispered word 25 feet after more than a year. When I say that such results are better than anything before presented, you can readily understand my enthusiasm in this improved technic. The hearing is one of the important reasons that I present this particular improved technic. And the reason the hearing is good is that the cochlea is covered with a delicate epidermis. In the other process it is covered with cicatrical tissue from one-sixteenth to one-half inch thick. You can imagine what would result. In a series of thirty cases of this particular procedure the patients are all well. There have been relapses from the accumulation of débris, etc., and in that way pus may form and require care. A patient may require care once in a month, another once in two months and another once in a year. Much depends on the personality of the patient. In passing I will give you something that in my practice has worked very well. After clearing the ear of epidermis and débris, provided there is no pus, mop the cavity out with oil. I have seen patients treated that way, after six or eight months, without the formation of new epidermis. In regard to facial paralysis I have had now eight cases of facial paralysis prior to operation, one in an acute case and seven in chronic cases. Of those patients six recovered and the patient who did not recover was unconscious forty-eight hours before he was operated on and died. I have had no case of facial paralysis following an acute or radical ear operation, except a case of temporary facial paralysis due to pressure, which disappeared in ten days. The after-treatment is concise and precise. You must dry your cavity and you must do it in a delicate way and not put in the gauze in a reckless manner. You will possibly spend more time in the after-treatment than in the after-treatment of the other class of cases. But your time is well spent, for in a few weeks your patient is well. Dr. Sewall said occasionally your patients will die. But remember what I said: If the labyrinth is intact you can do pretty much as you please and the patients will not die.

THE RATIONAL TREATMENT OF FURUNCLES *

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While the treatment of furuncles seemingly may be summed up in two words—incision and drainage—yet I apprehend that a thorough, complete and permanent cure involves a broad survey of many principles, based on a brief consideration of their cause and pathology.

A furuncle, as described by Da Costa, is "an acute and circumscribed inflammation of the deep layer of the true skin and the subcutaneous tissue following bacterial infection of a hair-follicle or a sebaceous gland." The exciting cause is usually *Staphylococcus aureus.* Burrowing down into the hair-follicle and invading the adjacent sebaceous gland, the bacteria excite the surrounding subcutaneous tissue to inflammatory defensive reaction. The blood-vessels dilate and become engorged, resulting in active hyperemia. Leukocytes transmigrate and serum exudes into the zone of defense resulting in a little tumor which is hard, painful and tender. In the center of this little tumor, corresponding to the position of the hair-follicle, is a pinhead-sized vesicle containing clear or slightly turbid serum and projecting hair-shaft. The little tumor grows for three days until it becomes a relatively formidable looking object, harder, more painful and more tender. Regional lymph-nodes become acutely hypertrophied and equally hard, painful and tender. This unwelcome state of affairs causes the patient no little discomfort and a varying degree of septicemia brings on fever and malaise. On the fourth day, strangled by the great pressure of the acute tissue hyperplasia, the hair-follicle and sebaceous gland begin to ulcerate, and liquefaction necrosis sets in. The skin immediately around the hair is slowly dissolved. Liquefaction now proceeds more rapidly and the tumor, from being hard, becomes softened in its center, and fluctuation is palpated. The furuncle, while less hard, is still painful and tender. Left to itself the softened center projects more and more and on about the seventh day bursts, and seropus escapes, affording the patient some relief. Shortly a white slough composed of the destroyed hair-follicle and sebaceous gland and bacteria is loosened and expelled from the central cavity of the furuncle. It is followed by the escape of serum which soon becomes tinged with blood. There is now seen a little red pit exuding serum and blood and surrounded by granulations. The lymphadenitis subsides and the patient is comfortable. Granulations soon fill the pit and regeneration of epithelium completes the resolution of the furuncle.

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* Read before the Philadelphia County Medical Society, May 24, 1911.

Predisposing causes are diabetes and other constitutional maladies, but more commonly violation of simple rules of hygiene. The established routine of "boils—look for sugar" is rarely fruitful. It will usually be found, however, that the patient is a little underweight, perhaps from overwork and insufficient or excessive or poorly selected food, and that he has become a little careless in the care of the surface of the body. He may be an athlete who thoughtlessly dons a suit soiled and sweaty from previous exercise, or a person who for sake of economy is equally careless about change of underclothing. He may wear frayed linen collars, whose edges grind bacteria-laden dust into the nape of the neck.

Prophylactic treatment, then, requires attention to nutrition and to hygiene of skin. Proper nutrition is maintained by sufficient plain, wholesome food taken at stated intervals and well masticated, and by daily evacuation of bowels to prevent absorption of intestinal toxins. A tonic of iron, quinin and strychnin, and free draughts of water, often from a quassia cup,. are desirable. Hygiene of entire skin requires antiseptic baths and fresh undergarments, preferably of linen mesh, daily. Local hygiene of nape of neck is important, and requires cropping of hair every fortnight, daily shampoo, and bathing with witch hazel or cologne water, and the wearing of clean, smooth and preferably soft collars. Scissors should be used on the nape of the neck instead of clippers.

The treatment of furuncles is divided into that of the furuncle itself and that of the low opsonic index of the blood. The immediate treatment of the furuncle itself varies according to whether it is in the stage of formation, the stage of ulceration and liquefaction necrosis, or the stage of resolution. When seen early in the stage of formation, the furuncle, if superficial, may often be decisively aborted in the following manner: Take a wooden applicator or matchstick and whittle to a fine point. Dip in liquefied phenol (carbolic acid). Shake off excess. Bore the point of this phenol-stick firmly and deeply into the vesicle in the center of the furuncle. Withdraw. In the wake of the stick there is seen a pit surrounded by a white eschar, aseptic because the active bacteria have been destroyed. A trace of blood may well up into the pit. The initial pain is quickly relieved by the anesthetic action of the liquefied phenol. If the furuncle is still in the early stage, but rather deep, a method recommended to me in a personal communication from Dr. George H. Simmons—that of injecting by the hypodermic syringe several drops of liquefied phenol right at the base of the furuncle—is effective. There is momentarily a sharp, excruciating pain, but after that, analgesia is established, and the patient freed from his previous tension-pain.

When seen late in the first stage it is common practice to make an incision. I believe this is wrong, for a furuncle, whether incised or not, completes its seven-day course as surely as night follows day. The furuncle still remains painful and hard. The incision in this case is futile because not in accord with the pathology of the lesion. A furuncle is a self-limiting process, always. The serum and leukocytes assemble to wage war against the bacteria. They seek to strangle and cast out the infected hair-follicle and sebaceous gland. This they eventually and invariably accomplish, on the principle of the sacrifice of one for the good of many. The knife, on the other hand, divides the infected hair-follicle and sebaceous gland and invades the demesne of those allies of health and foes of disease—serum and leukocytes. It shortens the process in no way, benefits the patient in no way, and leaves an entirely unnecessary scar. If healing takes place rapidly after incision, it is because the furuncle was well advanced, for in such case the slough will be found to be loose.

Given a furuncle late in the first stage, what is the most rational method of treatment? It would seem to be to establish an outlet, not for the beneficent serum and leukocytes, but for the products of liquefaction necrosis which are formed by Nature according to her best judgment, *secundum artem.* With the scalpel scratch off the little central vesicle. This causes no pain. A drop of discarded seropus follows and the ulcerating hair-follicle and sebaceous gland are exposed. Apply a Bier cup[1] and suck out as much as possible of the exhausted serum and blood. In the wake of the latter from nearby tissues comes fresh blood, with fresh serum and fresh, vigorous leukocytes. It is these that are going to cure the furuncle, and not the surgeon's knife. The knife inflicts unnecessary trauma, and gives the tissues two lesions to deal with instead of one. Often the vesicle does not even have to be scratched, in which case the cuticle is thin enough to be readily ruptured by the cup alone. Apply a dressing of plain sterile gauze wrung short of saturation from a solution of normal saline with sodium citrate. An important consideration in this method of treatment is that of drainage. If a gauze drain is inserted, it plays the rôle of a cork in a bottle. If left alone and allowed to dry, the lymph coagulates, thus plugging the furuncle. In keeping with modern pathologic conceptions what is desired is free bathing of the bacteria with fresh serum from the blood, with its highly antitrophic power. Sodium citrate, 1 per cent. solution, precipitates the calcium salts in the lymph and ensures a comparatively free outlet of the lymph discharge. By osmosis, the sodium chlorid sets up a flow of lymph through the walls of the furuncle, the citrate maintaining the fluidity of the serum. Thus, there is brought about a continuous flow of lymph of high antitrophic power from the congested blood-vessels through the wall of the furuncle and out through the wound. A bit of rubber dam may in addition be inserted if there is much tension on the outlet. The citrate is required for only about three days, and during its use the surrounding skin should be protected from pustulation by an ointment. The patient may make up his own solution for home use by adding a teaspoonful of sodium citrate and two and one-half teaspoonfuls of table salt to a glass of hot boiled water. Over this aseptic drain-poultice apply a piece of waxed paper or oiled silk, then a compress of non-absorbent cotton or wool and a cotton bandage. If the patient is going to lay up, leave the dressing open, instructing him to renew the drain-poultice frequently. The solution prevents the vesicle crusting over and the gauze absorbs the products of disintegration as Nature dispenses them. Sodium citrate should also be administered internally, 15 gr. three times daily after meals, both for its alkaline action on the blood, and for its diuretic action on the kidneys. The cupping and dressing may be repeated and renewed frequently

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[1] While Sir Almroth Wright objects to the Bier cup on the same grounds that I object to squeezing, yet practically harmful traumatic effects are not apparent, and in any case are far overbalanced by the benefit that ensues.

(every four hours) until the slough is loose, when this may readily be removed by a pair of small dressing forceps. After this, no matter how the resolving furuncle is treated, resolution proceeds rapidly and uninterruptedly, and the resulting scar is always the smallest obtainable in proportion to the size of the furuncle. In most cases it is invisible.

In some cases the granulations, instead of being firm, red and rapidly growing, are flabby, bluish and sluggish. The trouble here I believe is due to relaxation of the tissues and mobility of the part. These conditions may be overcome by strapping the edges of the wound with adhesive strips which compress the granulations and immobilize the skin. Then the granulations are dried, mopped with tincture of iodin, and dusted with Bier's powdered nitrate of silver. Exuberant granulations should be snipped off with scissors; for, as Colles long ago pointed out in his lectures, the silver stick does not "burn down" granulations, as it is commonly supposed, but stimulates them. To promote epithelial regeneration—which, in this method, has a very limited area to cover—8 per cent. scarlet red ointment or amido-azotoluol may be employed.

I object to flaxseed poultices on the ground that, while they may soothe the patient, yet they devitalize the edge of the furuncle, prolong the period of resolution, and leave a legacy of an unsightly depressed scar. I object strongly to the bichlorid of mercury on the ground that it is a corrosive poison, that it devitalizes the vigorous leukocytes and disintegrates the beneficent serum; that it destroys feeble bacteria on the skin but does not reach the more active bacteria in the depths of the wound, and that on tender skin it causes pustules to spring up anew. I am unalterably opposed to incision for the reasons given above. If incise you will, then excise the furuncle entirely; otherwise withhold the knife.

How is auto-inoculation of adjacent hair-follicles to be prevented? By shaving the area of skin wide of the furuncle and disinfecting it with 70 per cent. alcohol, tincture of iodin with benzin, a dilution of liquor formaldehydi or of aluminum acetate. Local disinfection should be repeated at each dressing, benzin being an excellent medium thoroughly to cleanse the skin of wound discharges, effete products, and remnants of adhesive plaster.

Of course, if a patient presents himself for the first time with a furuncle well advanced in the second stage, where there is marked softening and fluctuation, in fact, merely a subcuticular abscess, a small incision through the thinned skin is indicated on the surgical principle of *ubi pus ibi evacuo.* This principle is in no way applicable to a furuncle in the first stage, because there is no pus to be evacuated. I strongly object to squeezing a furuncle in any stage. Squeezing is unsurgical in that it causes acute suffering quite needlessly, traumatizes the furuncle, breaking the barrier of protecting leukocytes, and provokes hemorrhage which interferes with drainage. Make the drain, aided by the Bier cup, remove the pus. It is less painful and at least equally efficient. To hasten the subsidence of the enlarged lymph-nodes and of the acute hyperplasia about the furuncle, thiosinamin may be given by mouth in 1½ gr. doses three times daily after meals.

Immunization against furuncles, when carefully and judiciously supervised, plays an important and efficient rôle. It is either passive or active. Passive immunization is indicated in the active stage of furunculosis, when a furuncle is present on the body, and consists in injecting antistaphylococcic serum, rich in antitoxins, near the infected area, twice a week. Active immunization is indicated in the passive or resting stage of furunculosis, to prevent subsequent appearance of furuncles. It is also efficient in the presence of a furuncle, the course of which is often considerably shortened. In bacteriemia, on the other hand, bacterins are contraindicated, because here they would add to the toxins with which the body is already surcharged. Bacterin therapy consists in injecting subcutaneously killed staphylococci —which act by virtue of their bacterins (bacterial toxins)—in ascending doses, the body cells thus producing more and more antitoxins until the opsonic index is restored to normal. With this accomplished, the patient is not only immune to staphylococcic invasion, but his serum, now rich in antitoxins, could be used passively to immunize another patient with active furunculosis, but the potency of such serum is difficult to determine.

Most efficient are the autogenous bacterins. These are prepared by identifying and isolating the organism from a furuncle, scraping loopfuls from an agar slant, suspending in saline solution and killing by heat. At the University Hospital we suspend approximately 400 million killed bacteria in 1 c.c. of saline. Starting with an initial dose of 0.25 c.c., we increase by weekly injections to 2.5 c.c., the size of the increasing doses depending on the degree of reaction as shown by headache, malaise and possibly fever. While control by clinical symptoms is usually sufficient, yet to perpetuate the cure the patient's opsonic index should be taken at weekly intervals, to anticipate a change from a positive to a negative stage. The waning of the attacks of furunculosis is often indicated by the appearance of abortive furuncles.

The next best treatment of recurrent furunculosis is by yeast (*Saccharomyces albicans*), which stimulates phagocytosis and liberates carbonic acid, thus recalling John Hunter's recommendation of carbonate of sodium for boils. While brewer's yeast (*Oberhefe*) is inelegant pharmaceutically, is a nauseating substance and is hard to keep and to handle, yet it has strong advocates. I have seen furunculosis checked by the use of nuclein in the assimilable form of compressed tablets.

This method of treatment, then, commends itself because it is gentle, simple, painless, rational and effectual. Where, as sometimes happens, the furuncle is exceptionally large and severe—the carbuncular furuncle of some writers—I employ a little operation which seems to meet the indications very well. I fill a hypodermic syringe with a 3 per cent. solution of novocain, enter the needle through the sound tissue at the margin of the furuncle and plunge it under the base of the tumor. After waiting five minutes until the furuncle is completely anesthetized, I take a small curet and remove the core from the center of the tumor. This method is also applicable to furuncles on the face where, because of the wide-spread infiltration from the laxity of the tissues, there is danger of sinus thrombosis by way of the facial and ophthalmic veins. In case the supposed furuncle develops into a full-fledged carbuncle—and it is often impossible to say whether we will have to deal with a furuncle or a carbuncle except with the lapse of time—the safest and surest treatment is excision of the entire carbuncular area, hemorrhage being controlled by the Paquelin cautery and firm compresses, and pure liquefied phenol being applied. Thus will the progress of septicemia and of its effect, cloudy swelling—particularly of the kidneys—be checked, and often the life of the patient saved.

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THE NATURE OF THE VIRUS OF MEASLES *

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As soon as we had satisfied ourselves of the susceptibility of the monkey to inoculation with measles[1] we turned our attention to the study of the nature of the virus as it exists in the circulating blood. Accordingly we made experiments to determine its filterability, its resistance to drying, heat, freezing and "age," and now desire to present briefly some of our results, reserving greater detail for publication in a bulletin that will cover all of our work.

FILTERABILITY

We have made four separate attempts to determine this point. In each case the blood-serum was obtained by centrifugation of defibrinated blood and was diluted with three volumes of saline solution before filtering through a Berkefeld candle.

Our first two experiments appeared to be negative. In our third experiment we inoculated four monkeys with filtered serum which on account of an accident we had been obliged to pass through two Berkefeld candles. Of these four animals only one, Rhesus 101 b, presented any recognizable evidence of a reaction.

In our fourth experiment, following the inoculation of two Rhesus monkeys (113 a and 113 b) with filtered serum, one, 113 a, developed a well marked reaction with an eruption which began to appear twenty-one days after inoculation. From this animal we obtained some blood with which we inoculated two others, one of which, (a *Macacus sinicus*) No. 125, later developed a fairly well defined febrile reaction.

We conclude from the foregoing that the virus in measles blood is capable of passing through a Berkefeld filter.

DRYING

We have two experiments to record. In each the required amount of defibrinated monkey blood was put into a Petri dish and this with its cover tilted placed over concentrated sulphuric acid in a desiccator. The air was quickly exhausted from this apparatus and it was then placed in our cold room at 15 degrees C. At the end of twenty-four hours under these conditions the blood was found as a dry scale. This was rubbed up and dissolved in saline solution and then used for inoculation.

In our first experiment we inoculated two Rhesus monkeys, Nos. 107 a and 107 b. Of these animals No. 107 b gave no recognizable evidence of a reaction while No. 107 a presented, ten days after inoculation, only a slight rise of temperature that was sustained for two days. Subsequent reinoculation of both animals with virulent blood was followed in neither by any appreciable indication of a reaction.

In our second experiment we used the defibrinated blood of Rhesus No. 110 a, and, as in our first, after drying inoculated two Rhesus monkeys, Nos. 116 a and 116 b. Following this inoculation No. 116 b presented a well marked reaction with an eruption which began to appear fifteen days after the inoculation.

We conclude that the virus in the circulating blood of measles may resist desiccation for twenty-four hours under the conditions of the experiment.

HEAT

We have made three attempts to determine whether the virus in measles blood retains its infectivity after heating, in one experiment at 57 C. and in two at 55 C, for fifteen minutes. None of the monkeys inoculated with blood so heated has given any recognizable evidence of a reaction although the unheated blood used in each case was shown to be infective by control inoculations.

This, we think, strongly indicates that the virus of measles does not retain its infectivity when heated to 55 degrees for fifteen minutes.

FREEZING

We froze some defibrinated blood from Rhesus 110 a shown by controls to be highly infective, by putting a test tube containing it into a freezing mixture, the temperature of which was a little under 13 C. It was kept frozen solid at a temperature between 13 C. and 0.0 C. for twenty-five hours. At the end of this time the blood was quickly thawed out, warmed to 37 degrees and inoculated intravenously in a Rhesus monkey (No. 118 a). Following this inoculation the animal developed a reaction marked by the appearance of an eruption that was first noted twenty-six days after the inoculation.

The virus appears, therefore, to have resisted "freezing" for twenty-five hours although the long incubation period would perhaps indicate some reduction in its virulence.

We think it right to add that some doubt of the validity of this experiment exists because the animal was inadvertently exposed to "contact" during the period of observation. While we are unable to exclude the possibility of contact infection our experience inclines us to believe this possibility rather remote in this instance.

AGE

We made two experiments to test the "keeping" quality of the virus in measles blood. Virulent defibrinated monkey blood was kept in a sterile test-tube plugged with cotton, at 15 C. for twenty-four hours in the first and for twenty-five and one-half hours in the second experiment. At the end of these periods the blood was used for the inoculation of monkeys. Neither of the two inoculated in our first experiment presented any recognizable evidence of a reaction.

Of the two animals inoculated in our second experiment only one (No. 117 b) gave any suggestive indications of a reaction. In studying the temperature curve of this animal one notes a moderate rise on the fifteenth day after inoculation followed by a decline, and this by a second rise of equal degree sustained for about six days.

We are inclined to interpret this as a reaction, and, therefore, think it probable that the virus still retains some of its infectivity after twenty-four hours at 15 C.

SUMMARY

We may summarize our conclusions as follows: The virus in measles blood may (1) pass through a Berkefield filter, (2) resist desiccation for twenty-five and one-half hours, (3) lose its infectivity after fifteen minutes at 55 C, (4) resist "freezing" for twenty-five hours, (5) possibly retain some infectivity after twenty-four hours at 15 C.

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* From the Hygienic Laboratory, U. S. Public Health and Marine-Hospital Service.

[1] Anderson and Goldberger: Experimental Measles in the Monkey: A Supplemental Note, Pub. Health Rep., June 16, 1911, p. 887.

It is a pleasure to express our indebtedness to Dr. H. B. Deal, attending physician and Dr. A. C. Smith, resident physician, Garfield Hospital, to Dr. H. A. Fowler and to Dr. J. R. Wilder for access to cases of measles. We are also grateful to the medical profession of the District, particularly to Drs. Percy Hickling, R. T. Holden, E. E. Richardson and M. O. Dumas for their courteous cooperation in offering us access to some of their measles patients.

PREVENTIVE MEDICINE SECTION COMMITTEE REPORTS *

REPORT OF COMMITTEE ON STATE METHODS OF PUBLIC EDUCATION IN HYGIENE †

I. SHOULD STATE BOARDS OF HEALTH UNDERTAKE AN EDUCATIONAL CAMPAIGN IN HYGIENE?

There seems to be not a shred of an argument against the opening and the continuing of a strong campaign of education of the public in hygiene by state, city and town boards of health. The advantages would be many and the disadvantages none. That the public sadly needs the education, appears in the fact that not 2 per cent. of all people born escape being stricken with preventable ailments. The masses of people do not know how to breathe, do not know why they breathe and do not know what they breathe. Dust, smoke, the products of combustion and vile odors, so far as their hygienic bearing is concerned, are simply words to them. The masses are beginning to have permanent glimmerings of the importance to health of drinking pure water and pure milk, but are not yet quite ready to stand the expense by which these blessings are to be obtained.

The necessity of hygienic housing for the benefit of society and the nation by raising the general health is yet little appreciated by those who are directly affected, is not at all appreciated by those who own living blocks, and business men generally are all too indifferent. Well-to-do farmers and well-to-do merchants, in not small numbers, still strongly oppose the erection of sanitary school houses on account of the initial expense; they oppose necessary sewers, they oppose building good roads and streets, they oppose drainage for the purpose of conquering malaria, and they settle any proposition to conform to the laws of health, by hurling the epithet "crank" at any one having the temerity to propose such a thing. Yes, public education in hygiene is badly needed, and the labor properly falls on health authorities.

II. WHAT SHOULD BE THE FINANCIAL PROVISION FOR SUCH A CAMPAIGN?

The answer to this depends on many conditions. If hygiene be effectually taught in the public schools and if medical inspection of school children is in force, then, within a decade, public health exhibits and pamphlet distribution may largely be done away with. Until then, however, public exhibits, pamphlets, bulletins and lectures are decidedly in order. The expense must, with rare exceptions, be borne from public treasuries, and a vital question is, how may the said treasuries be opened for this good purpose? In instances, funds may be secured from persons who are the holders of accumulated wealth; and such source might appropriately be termed accidental. Wherever it can be laid hold on, there most probably will be found a practical philanthropist who will be keen enough to do it.

In order to secure funds for such work from public treasuries, certain influential members of the laity must be converted to the cause, and they must publicly express themselves. In the state of Indiana, Governor Thomas R. Marshall was convinced by his own family physician and other members of the profession of medicine that in preventive medicine the state would find a source of revenue, a source of strength, and a source of happiness. He spoke forth his convictions from the platform and in message and the holders of the keys to the money-boxes listened and heeded. In consequence, eight out of nine bills bearing on different phases of preventive medicine were enacted into law and the appropriation of the state board of health was doubled. The lesson is, those interested must make politics out of humanitarian and philanthropic causes, showing their economics, in order to secure the wealth and happiness to society which lie in such forces.

As to the amount of money necessary to carry on campaigns of education in public health work, this will depend on many conditions, but it may be safely predicted that the practical politicians, holding the strings to the public money bags, will not loosen said strings sufficiently to swamp the cause.

III. SCHEMES OF ORGANIZATION

1. Each state board of health and each board of health of large cities should have a bureau of education, or a publicity bureau with a superintendent whose whole time should be given to this phase of public hygiene. Said superintendent should, of course, be capable; but more, his heart should be in his work and he should stand ready at any time to make large sacrifices for the cause.

2. Proper help, in numbers and character, in the line of intelligent clerks should be provided, and every effort put forth to secure the moral support of the people.

3. Proper pecuniary support must be secured. Obviously the amount must be commensurate with the work that is projected and if not, the process must be reversed, and the work projected must be commensurate with the appropriation.

4. A scheme of organization for a department of publicity must be according to the size of the state or city and the moneys available, and no syllabus for said organization will be offered herewith.

IV. METHODS OF MAKING USE OF EXHIBITS AND LECTURES

Of course a Cæsar or a Napoleon would make use of and find advantages in general methods of any kind and for any purpose which would be unthought of by the ordinary person, and so, whatever force or advantage any one method of addressing the public might have will depend on the man in command.

Car Exhibits.—The excellent examples set by Louisiana and California in the matter of traveling exhibits could well be followed by other states. The financing and the securing of the aid and cooperation of the railroads are the first two steps in the enterprise. These being secured, the character and arrangement of the exhibit follows. The aid of the press, on account of its unusual comprehension of public needs, is always easily secured, and said aid may always be assured to be at hand.

The coming of an exhibition car to a community should be fully heralded in the local press; posters, descriptive and explanatory of the exhibit, should invariably precede the car, and it would be well to have a box for contributions in a conspicuous place and to supply tags for all visitors. These would lend a personal interest to visitors and especially to contributors.

Hall Exhibits.—While car exhibits have the advantages of novelty, rapid transportation and always being in order, still, they must be expensive and the space is not large. Halls for hall exhibits may quite always be secured without rent, even an empty store room answering the purpose very well. Indeed, such rooms are to be frequently preferred because they are usually in the business district of a town and very accessible. It is certainly true of the car and the hall exhibit; both have their advantages and both should be used.

Lectures and Sermons.—Illustrated and not illustrated, lectures and sermons are usual and excellent methods of educating the public. The effectiveness of speakers will differ greatly, but sincere, earnest and plain presentation of the facts will always be potent in arousing action. Unless action is aroused, the lesson is of little worth. The presentation of moving pictures will not be forgotten, although the very refined police of Indianapolis did forbid the showing of the now famous fly film, which has done such excellent service in cities and towns everywhere in the land. In Indianapolis, a woman complained to the police that the maggots hatching into flies shown by the fly film made her sick, and the horrid thing should not be exhibited. The police responded and suppressed the show and it was afterward found that the maggot-passing-into-fly process was actually and really happening in the complaining woman's backyard and also in many places near the police headquarters. The incident is related simply to show that certain kinds of women and certain kinds of police must be considered in getting up exhibits for the instruction of the people in any of God's truths.

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* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

† Other reports will appear in succeeding issues

V. HEALTH OFFICERS' SCHOOLS

Schools for health officers are a real necessity in these days. Health officers should be called together at least annually by state boards of health or health commissioners, that matters pertaining to public hygiene may be discussed and acted on, that instruction might be given by persons who have become prominent in the work, and also that all may profit by criticisms and through questions and answers. The enthusiasm and interest which health officers' schools arouse in an invaluable help in the cause.

Public Schools.—The most promising soil in which to plant the seeds of hygiene is the public schools. The minds of children, being plastic and receptive, will readily accept and assimilate new truths, and these becoming a part of the composition of the child will find practical expression when adult age is reached. It sometimes seems to be a waste of time to try to secure the action of adults in the matter of the practical application of well-known hygienic truths. They, in considering the matter, remember they have survived, and then draw wholesale conclusions to the effect that the truths and arguments presented in regard to disease prevention are all bosh.

The advice given by President David Starr Jordan is certainly sound: "If ever you wish to go in for philanthropy, if ever you wish to be of any use in the world, do something for little children." And further, "If the great army of philanthropists ever exterminate sin and pestilence, ever work out our race's salvation, it will be because a little child has led them."

Posters, Wall Cards, Etc.—The usefulness of posters, wall cards, charts, cartoons, pictures, etc., in education is very great. Directions for preparing them cannot be given, as they must be devised by the intelligence, tact and ingenuity of the individual. The posters and charts presented by the New York Health Commissioner and other health authorities are most ingenuous and excellent. They all forcibly illustrate various phases of disease prevention, and health authorities who find themselves unable to excel such charts and posters will undoubtedly be given permission to use those from other states on request.

Bulletins.—All kinds of bulletins in all kinds of causes have always been effective. A fully successful bulletin treating any phase of the public health cause will depend for its success on lucid and striking expression. The prosy, dull bulletin, telling its story in humdrum style, will never make a hit. It will not interest and will not cause its readers to act. The healthgrams of the Chicago Health Department Bulletin, and like grams of other bulletins, have made good and lasting impressions. The lesson is that bulletins on health subjects must be bright and original, presenting their matter briefly and strikingly.

The Press.—Most potent of all educational forces, except the schools, is the press. We are a nation of newspaper readers and through the papers is found the best method for immediately reaching the public. Everywhere newspapers most gladly publish live readable matter on public hygiene. Without the aid of the press public health work would move slowly indeed. In using the press, as in other methods of reaching the public, success depends very largely, perhaps altogether, on the tact and talent of those who prepare the matter.

J. N. HURTY, Chairman, Indianapolis.
WILLIAM F. SNOW, Sacramento, Cal.
OSCAR DOWLING, Shreveport, La.

ABSTRACT OF DISCUSSION

DR. W. F. SNOW, Sacramento, Cal.: The subject of educating the public should be divided into at least two divisions: the children and the "grown-ups." At the age of 14, 85 per cent. of children leave our schools never to return. The problem, therefore, is very different with our children up to the age of 14, and from that age on.

In the teaching of children I believe the most important new factor for us to emphasize is the use of the moving pictures. Somehow or other, teachers are very slow to utilize this wonderful mechanical invention. Our high schools are nearly all equipped with stereopticons, and many of our grammar schools are similarly equipped and have weekly lantern-slide shows; but the moving picture itself, which is the same kind of a mechanical device, is not used, and many teachers think that moving pictures are to be frowned down. In California we are trying to have arrangements made for a weekly educational day in every town which has a moving picture show.

We have had some experience in California with a traveling sanitation car, which I think was the first one sent out in this country. We had to operate some such plan to cover the great distances in California. This car has had a great influence with the schools, but as Dr. Hurty has emphasized, these methods are somewhat transitory. They create a great deal of interest at the time and do excellent work in getting newspaper publicity, in distributing literature and in reaching all the children of the schools with preliminary impressions of public health and hygiene. But permanent results do not follow unless such general methods are supplemented with something else that is more durable.

Just now in California we are trying a supplementary experiment with what we call small serial demonstrations. We have small relief maps, so provided with models of houses, dairies, vegetable gardens, etc., that the children may lay out the sanitary situation in their own districts and then move these houses around to correct the bad features. In other words, the outfit is designed to teach the children at the round-table to play sanitary games. These outfits are boxed up, sent out to the different schools for a period of a week or two and then sent on to other teachers. In a similar way we are sending out small bacteriologic exhibits. We have a pure food exhibit along the same lines. The State Board of Health is sending these out in an effort to stimulate communities to establish permanent work along these lines in their schools.

So far as general results are concerned, Dr. Hurty has undoubtedly wisely emphasized the newspapers. If we stop to think of it, when we lose 85 per cent. of our children at the age of 14 or 15 from our schools and they go into our industrial occupations, from that time on they never get any organized instruction except through the daily and weekly papers of their community. I believe that the newspaper is truly the great educational system for adults at the present time. We have only just begun to realize this, and to cooperate tactfully and efficiently with the newspaper editor in utilizing his opportunity in the field of education.

In regard to exhibits, up to the present we have largely gone before the public without any attempt at correlating the ideas put forward. The result is that the public believes all these things to be a matter of hobbies. We must work out some scheme for presenting to the public all the time a connected, comprehensive idea of health conservation in all its phases, no matter what particular phase is being agitated in the community at any given time.

DR. FRANCES M. GREENE, Cambridge, Mass.: Until now sex-education has always been relegated to the mother; seldom to the father or the physician; and the physician has always lent himself to the little fairy tale which forms the first lie that a child is obliged to hear. But when the great congresses met in order to face the question and to solve the problem of venereal disease, they all turned to the mother and said, If we want to do *anything* to help these conditions, we must begin by teaching the infant, by being serious with the child. This was very easy to say, but exceedingly difficult to do;

and I find, after several years of work in trying to teach mothers how to be sincere, that we need help in all directions; and in this the doctor can serve us greatly. The family physician should do his best to make the mother realize, not only what she is going through at childbirth, but the responsibilities she is going to take on herself; and that what is about to happen to her is one of Nature's mightiest phenomena, whose significance should be reverently understood by the children in the household. She should not try to conceal her position, and nothing can help so much as having the family physician talk to the father and make him realize his responsibility in the matter.

In the first place, the first question that the child asks should be answered with sincerity instead of falsehood, coldness and very often a distinct rebuff. Then the confidence between the parent and the child will be made fast; the child will not turn elsewhere for information which the parent can give best of any one; and as he grows to puberty, instead of getting information about the most necessary and natural things from strangers, the mother and father will be his natural teachers. Then by a very easy and natural process, when the boys and the girls go out into the world, they will be told about the dangers which they are there to meet, and be prepared to meet them. In this matter the physician can greatly help or greatly harm. I have had women say to me: "What can I do when I go to my physician and tell him that my boy has had night emissions, and he answers that the only cure is to send him to a prostitute?" or when the boy is given a latch-key and sent by his own father as soon as he is 14 or 15?

Dr. William C. Woodward, Washington, D. C.: A method of educating the people that has not been referred to at this meeting was forcibly pointed out at the general meeting this morning, in a letter that was sent to the Association by Senator Robert L. Owen. In substance, he pointed out that if we would have the people believe our teachings and live up to the principles that we enunciate, we ourselves must follow such teachings and live up to such principles. And what is true of individuals is true also of communities. No city or state, nor the federal government itself, should impose on the individual sanitary requirements which the city, or the state, or the federal government does not live up to.

Dr. Oscar Dowling, Shreveport, La.: In Louisiana, since Nov. 5, 1910, we have made a state-wide health-educational campaign. The majority of the people, not only in Louisiana, but in many other states, do not know how to practice the simplest health rules, or know why they are necessary. They think of disease as inevitable. This is no reflection on them. It means simply that we, as a nation, have not emphasized principles of hygiene and sanitation either in legislation or administration. I believe Louisiana has the distinction of being the only state in the Union to own a health train. In our campaign these cars—two containing exhibits, one used as living quarters—were transported over 7,000 miles in the state. Two hundred and fifty-six towns were visited. Nearly three thousand inspections were made. In order to have accurate personal knowledge of conditions and a correct judgment of the attitude of the public mind toward health reform, I myself made these inspections, with very few exceptions.

It has been estimated that eight years could be added to the normal period of human life by merely securing reasonably pure air, water and milk. Having this in mind and the tremendous importance of food in physical welfare, the effort was to make plain to all those engaged in manufacture, production, or sale of foodstuffs, that surroundings, including the method of handling, must come up to a certain standard of cleanliness. Dairies especially were selected as an object lesson. Five hundred and eighty-one were inspected. I am sorry to say conditions in some were rather bad. In one town our officers picked up one morning six samples of milk. Five of the six had been watered. One dealer on being asked to show cause why he should not be prosecuted replied that he had brought it 3½ miles. If he didn't add water, the milk was so rich it would turn to butter before he could get to town. The score card of the American Dairymen's Association was adopted and we require that every dairy to receive a permit to sell, shall score 50 points. We taught the people how the actual cleaning should be done. We require a tuberculin test and when the cows react, they must be slaughtered. We find that in the country where the herds are kept in the open, fewer react. In one herd of 180 in the city, 37 reacted; in the country in four herds numbering 300 there was only 1. Since the inspection tour many dairies have been remodeled, and we believe the time is near when Louisiana will have as pure a milk-supply as any other state in the Union. Nearly every slaughter-house inspected was condemned. These are being replaced by sanitary and modern structures. In this campaign instruction in prevention of disease was given in every talk, demonstration and lecture. Louisiana, as all members of the medical profession know, is free from yellow fever. Now we want to get rid of the mosquito. Cleanliness and drainage will do this and as a result we shall be practically free from malaria.

It was predicted that the abolition of the public drinking cup would meet with much opposition, but we had four months in which to carry on this educational campaign before the regulation went into effect and we are glad to say that the people are loud in their praise of its abolition. The enforcement of this law has had a widespread educational influence. In effect it enters into the lives of many classes of people.

We have secured beyond our hopes the cooperation of the citizens in the reporting of births and deaths. A little story of Dr. Hurty's relative to a lost inheritance seemed to appeal to the people and arouse their interest. A regulation which will go into effect July 1 will further protect the people from infectious disease, namely, the abolition of the common towel. Foodstuffs also, after July 1, will be further protected by the regulation which requires wrapping of bread and protection of other products from dust and flies. We have the cooperation of the people throughout the state and believe that Louisiana, in response to an earnest effort for ideal conditions, will be in a short time as clean—we won't say cleaner—but we hope will be just as clean as any other state in the Union.

REPORT OF COMMITTEE ON STANDARD METHODS OF PROCEDURE FOR THE CONTROL OF BOVINE TUBERCULOSIS IN RELATION TO MILK-SUPPLIES*

We, the committee to whom was referred the question concerning standard methods of procedure for the control of bovine tuberculosis in relation to the milk-supply, beg leave to suggest the following recommendations as a basis for laws, regulations and ordinances by municipal health officers:

1. That all cows on dairy farms producing milk for market purposes be tagged, tattooed or otherwise marked for identification.

2. That (a) all milk produced on such dairy farms shall either come from tuberculin-tested cattle, which shall be retested at least once a year; or
   (b) if sold from untested cows the latter must be given a careful physical examination every three months by competent veterinarians accepted by the board of health, all suspicious animals being eliminated, and the physical score-card of each animal in the herd filed with the proper health authorities (commissioner, board, veterinarian); or
   (c) the milk must be subjected to pasteurization under the supervision of the health authorities in case the herd is not handled in accordance with the above requirements.

3. That no additions to any herd, whether the herd has been tested or not, shall be made in the future without subjecting the additional cattle to the tuberculin test.

4. That no license for the sale of milk shall in future be granted except to applicants having herds known to be free from tuberculosis, as indicated by the tuberculin test.

5. That the [illegible] any udder affection, or anthrax, rabi[illegible] conditions, or clinical symptoms of [illegible] utilized as human food,

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* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

even though the milk be pasteurized. Milk from cows fifteen days before and five days after parturition, and that from animals receiving any deleterious medicaments or foodstuffs shall likewise be excluded.

6. That veterinary inspectors of health departments make frequent visits to dairies having untested herds, in order that they may discover all advanced cases of tuberculosis, or udder tuberculosis, as early as possible.

We favor the amendment of all state laws in order to make them include the following features:

1. The compulsory testing of all dairy cattle and the requirement of certification of the tuberculin test for all dairy cattle sold, except for purposes of immediate slaughter.

2. The adoption of an official system of marking reacting animals in such a way that they can be definitely identified.

3. The payment of appropriately-guarded indemnity to all owners of tuberculous cattle which come under the respective jurisdictions of the various states, the said animals to be slaughtered in abattoirs having federal, state or other efficient inspection. Exceptions should be made in case of cattle valuable for breeding purposes, but such animals must be kept in quarantine under strict supervision.

4. The prohibition of the sale or feeding of unpasteurized milk from reacting cattle.

THE TUBERCULIN TEST

1. "That tuberculin, properly used, is an accurate and reliable diagnostic agent for the detection of active tuberculosis.

2. "That tuberculin may not produce a reaction under the following conditions:

"(a) When the disease is in a period of incubation.
"(b) When the progress of the disease is arrested.
"(c) When the disease is extensively generalized."

"The last condition is relatively rare and may usually be detected by physical examination.

3. "On account of the period of incubation and the fact that arrested cases may sooner or later become active, all exposed animals should be retested at intervals of six months to one year.

4. "That the tuberculin test should not be applied to any animal having a temperature higher than normal.

5. "That any animal having given one distinct reaction to tuberculin should thereafter be regarded as tuberculous.

6. "That the subcutaneous injection of tuberculin is the only method of using tuberculin for the detection of tuberculosis in cattle which can be recommended at the present time.

7. "That tuberculin has no injurious effect on healthy cattle.

"That a positive reaction to tuberculin in any properly conducted test, official or otherwise, in any animal in any herd, shall be considered evidence sufficient on which to declare the herd to be infected." (From report of International Commission on the Control of Bovine Tuberculosis.)

In the application of the tuberculin test as well as in the interpretation of the results obtained, the following conditions are recommended in order to secure uniformity of procedure:

1. Keep stable cattle under usual conditions and among usual surroundings, feeding and watering in the customary manner.

2. Make a physical examination of each animal, and give to each one some designation by which the animal will be known throughout the test.

3. Take each animal's temperature at least three times at two- or three-hour intervals on the day of injection; for instance, at 2, 5 and 8 p. m. When the last preliminary temperature (which would immediately precede the injection) registers above 103 F., the injection of the tuberculin should not be made; the test of such animal should be postponed.

4. At 10 p. m., inject a dose of tuberculin under the skin in the region of the shoulder, using a sterile hypodermic syringe, after disinfecting the skin at the seat of injection with a 5 per cent. solution of carbolic acid or a similar antiseptic solution.

5. The dose of tuberculin (Koch's original concentrated) is from 0.25 to 0.33 c.c. for adult animals, weighing about 750 pounds. It is convenient to dilute this with a 0.5 per cent. solution of phenol (carbolic acid) until the size of the dose to be given is 2 c.c. Yearlings and 2-year-olds, according to size, should receive from 1 to 1.5 c.c. of such solution, while bulls and very large animals may receive 3 c.c. Double, or even triple, doses should be given to cattle recently injected with tuberculin; also in the case of animals which, on physical examination, are supected of being tuberculous.

6. At 6 a. m., on the day following the injection of tuberculin commence taking temperatures, and continue every two hours until the twentieth hour after injection, at which time if there is no tendency for the temperature to rise the test may cease.

7. A rise of 2 F. or more above the maximum temperature observed on the previous day, or one which goes above 103.8 F. should be regarded as an indication of tuberculosis, provided the temperature reaction shows the characteristic rainbow curve.

8. Animals which, after injection, show a rise in temperature of 2 F., with a maximum between 103 and 103.8 F., as well as those which show a rise less than 2 F., with a maximum temperature of 103.8 F. or more, are to be regarded as suspicious. These suspicious cases should be held for a retest six weeks later, giving double the original dose.

9. The ophthalmic, cutaneous or intradermal applications of tuberculin are still in the experimental stage, and cannot be recommended for a routine practice at the present time.

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VERANUS A. MOORE, M.D.,
Dean New York State Veterinary College, Cornell University, Ithaca, N. Y.
JOHN R. MOHLER, M.D.,
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REPORT OF COMMITTEE ON REGULATIONS FOR THE PASTEURIZATION OF MILK*

1. No milk shall be used for pasteurization which comes from a dairy scoring less than 55 on the Department of Agriculture score-card, which has been scored by an official inspector.

2. The milk must have been kept cool (below 50 F.) from the time it leaves the dairy to the time it reaches the pasteurization plant and shall be kept below 50 F. at the plant up to the actual time of pasteurization.

3. The "flash process" for pasteurization is to be condemned.

4. The "holding process" shall be the only process recognized as efficient. The milk must be held for twenty minutes at 145 F., or for five minutes at 160 F.

5. The heated milk must be cooled immediately after the period of holding has elapsed to 50 F. or below.

6. Automatic temperature devices recording the exact temperature in the pasteurizing machine during the process are to be attached, and keys for these devices are to be kept by the health department.

7. Bacterial counts and acid determinations to control efficient cooling during transportation shall be made at regular intervals. These counts should be made before and after pasteurization to control the efficiency of the pasteurizing process.

8. Pasteurized milk, on leaving the pasteurizing machine, should not contain more than 50,000 bacteria per cubic centimeter, no matter what the initial bacterial content of the raw product was.

9. The pasteurized milk must be kept below 50 F. up to the time of delivery to the consumer.

10. Pasteurized milk should be designated as such on the bottle cap or in any other suitable manner.

11. Employees in the pasteurization plant should be subject to medical examination at regular intervals. If any employee contracts a contagious disease, this fact should be reported to the health department without delay.

12. Pasteurized milk should receive the same care as raw milk under all conditions.

E. O. JORDAN, PH.D.,
Professor of Bacteriology, University of Chicago.
P. G. HEINEMANN, PH.D.,
Associate in Bacteriology, University of Chicago.
Committee.

ABSTRACT OF DISCUSSION

DR. L. M. POWERS, Los Angeles: The proposal is a very good one. I would like to make one amendment. Milk should not be allowed to be pasteurized more than one time. It is not a provision of our ordinance at the present time; but I see that we will have to enact it. Milk that is shipped from a long distance into the city is pasteurized more than once: pasteurized up north, a couple of hundred miles from here;

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* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

shipped in here and then, to prevent it from spoiling, is repasteurized; if the delivery wagon goes out and any milk has been returned undelivered, again it is repasteurized. If it is not spoiled the customer gets it after three pasteurizations, or three cookings. Otherwise, I think the provisions are excellent.

Dr. William C. Woodward, Washington, D. C.: In determining whether milk is or is not fit for pasteurization, it is not, I believe, possible to rely absolutely on the mere rating of the dairy farm in terms of the total score attained as shown by the score card of the Department of Agriculture or by any other score card. The Department of Agriculture allows on its latest score card for conditions pertaining directly to the cattle themselves fourteen points out of a possible 100. It would be quite possible, therefore, to have every cow in the herd tuberculous and dirty, and yet to have the total score for the dairy farm above that fixed by the committee as entitling the milk to use for pasteurization. In order to determine the meaning of a score card, it must be interpreted by some one trained for that very work. The total score considered alone means very little, and no rule of thumb can be adopted for determining the significance even of the detailed score.

REPORT OF COMMITTEE ON THROAT CULTURES*

Your committee, after having conducted an investigation of the present status of methods of throat culturing for the diagnosis of diphtheria, has elected to submit the accompanying report of progress with the recommendation that the committee be continued, with authority to investigate the subject further during the ensuing year.

The work of the committee has been thus far confined to the collection and study of data furnished by public health laboratories in which routine bacteriologic diagnosis of diphtheria is regularly performed. With this object in view, a large number of inquiries and requests for sample outfits were sent out. The information thus collected has been studied with the view of the ultimate recommendation of standard procedures in so far as this is possible. It does not seem desirable, at this time, that a complete culture outfit be recommended for adoption by the Section, or that a standard laboratory technic be outlined. It is deemed advisable, however, to submit a brief summary of the information thus far collected, together with such recommendations as have been agreed on by the committee, and to invite free discussion by members of the Section of the subject-matter presented.

CULTURE OUTFIT

Your committee recommends that the outfit used by state laboratories be so constructed as to be mailable. The present postal regulations require that such an outfit shall consist of two screw-topped metal cases, one fitting inverted within the other, in the inner of which are contained the tubes of infectious matter, protected from breakage by cotton wrappings.

It is further recommended that the culture outfit used in state laboratories shall not contain culture medium, but shall contain swabs only,[1] preferably two in number, enclosed in separate test-tubes for nose and throat cultures. This method eliminates the difficulties and delay arising from the use of old, dried or contaminated culture media, and insures the proper inoculation of the medium by expert hands in the laboratory.

The swabs on arrival in the laboratory should first be used for inoculation of cultures, after which direct smear preparations should be made. All frank positives obtained by the direct smear method (which in expert hands amount to from 60 to 80 per cent. of the total final positives) should be reported at once, and the others should be held for the result of the culture.

Outfits supplied by municipal laboratories may be mailable or non-mailable, as circumstances may dictate, but as mailable outfits are, as a rule, much more expensive, nonmailable outfits are usually to be preferred.

The omission of the culture medium in the outfit designed for municipal use is left optional. It is to be noted, however, that a number of municipalities are now sending out swabs only.

Your committee recommends that all swabs be returned to the laboratory irrespective of the presence or absence of culture medium in the outfit. For this reason, swabs should be sent out in sterile glass tubes plugged with cotton. The swabs so returned are more certain of proper sterilization and are available for direct smear examination and for reinoculation of the culture medium in case of doubtful diagnosis.

Of the materials used for swab sticks, wood, aluminum wire or iron wire seem preferable. Copper or brass wire is not recommended, as there is a possibility that copper salts derived from the oxidation of the wire may, at times, exert an antiseptic influence on the organisms with which the swab is impregnated.

Tongue-depressors are omitted from the outfit by the majority of laboratories.

Drying of the culture medium is prevented in various laboratories by the use of rubber caps, paraffin, sealing wax, aluminum foil and paraffin, and corks enclosed in cotton and dipped in paraffin. In case the aluminum salve box is used a rubber band or strip of physicians' adhesive tape will serve the purpose.

INSTRUCTIONS AND PRINTED MATTER

It is recommended that information as to the interpretation of findings be enclosed in the outfit. This is intended to save the laboratory unnecessary, irrational complaints and to guard against misinterpretation of results on the part of those unfamiliar with laboratory diagnosis. A sample statement of such information is herewith submitted:

> A positive report cancels all previous negatives on the same case.
>
> A negative report may mean any one of the following:
>
> 1. Absence of *B. diphtheriæ* in the throat.
> 2. Failure to reach the bacilli with the swab. This occurs frequently in laryngeal cases and may occur in pharyngeal cases through imperfect technic. (See instructions.)
> 3. Failure to inoculate the medium properly.
> 4. A very few diphtheria bacilli in the presence of many other varieties may be overlooked by the bacteriologist. Statistical study shows this to be infrequent.
>
> "Suspicious organism" calls for a second culture. Antitoxin should be given at once and temporary isolation instituted. All suspicious cultures will be reincubated and will be reported a second time if more definite findings are obtained.
>
> "No growth" means nothing. Diagnosis is withheld and a second culture is required. It may be due to—
>
> 1. Use of an antiseptic in the throat previous to taking the culture.
> 2. Failure to inoculate the medium properly.
>
> "Contamination" means nothing. Diagnosis is withheld and a second culture is required.

It is further recommended that the report of the laboratory cover the following findings only:

B. diphtheriæ present.
No *B. diphtheriæ* found.
Suspicious organism.
Streptococcus (when the predominating organism).
B. influenzæ (when the predominating organism).
Spirillum of Vincent.
No growth.
Contamination (when sufficient to invalidate the diagnosis).

Sample instructions for making throat cultures are also included herewith. (See accompanying sheets.)

RECOMMENDATIONS AS TO POLICY

It is recommended that two successive negative cultures, taken at intervals of not less than twenty-four hours be required for release from quarantine.

It is further recommended that all terminal cultures be taken from both the nose and the throat.[2] The taking of nasal cultures for initial diagnosis is left optional with the physician.

In case of doubtful laboratory findings, temporary isolation of the patient should in all cases be ordered and maintained until a subsequent culture proves negative.

LABORATORY PROCEDURE

Under this heading the committee makes no definite recommendations, but merely submits information as to the customary procedure in public health laboratories. The culture medium in common use for diagnosis of diphtheria is Loeffler's blood-serum. For its preparation horse-serum, pig-serum and ox-serum are used according to the following formula:

Serum	3 parts
Broth, containing 1 per cent. dextrose and 1 per cent. peptone	1 part
Glycerin	4 to 5 per cent.

Some laboratories are still using fractional sterilization on three to four successive days, but the majority are now using the autoclave, either with or without previous inspissation. One correspondent recommends egg-medium for emergency use (25 c.c. of physiologic salt solution to four eggs sterilized in the autoclave or fractionally in an Arnold sterilizer).

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* Read in the Section on Preventive Medicine of the American Medical Association, at its Sixty-Second Annual Session, held at Los Angeles, June, 1911.

[1] Slack, Arms and Wade: Longevity of *B. Diphtheriæ* on Swabs, Jour. Am. Pub. Health Assn., 1910, xx, 639.

[2] Nose and throat cultures should be taken with separate swabs to avoid transferring the infection from one cavity to the other. In release cases, if desired, both swabs may be rubbed on one and the same culture-tube or box. In diagnosis cases separate culture-tubes should be inoculated from each swab.

The temperature commonly recommended is 37 C. The time of incubation varies from six to twenty-four hours, and in most instances falls between twelve and eighteen hours.

Loeffler's methylene-blue is the sole staining agent recommended by the majority of correspondents and Grübler's preparation is universally recommended as a satisfactory brand.

A few special stains are mentioned, e. g., those of Gram, Neisser, Grouch, Rush and Epstein, as aids in the case of doubtful diagnosis. Of these the one last mentioned appeals to the committee because of its simplicity. The directions are as follows: Stain the slide in the ordinary way with Loeffler's methylene-blue; flood half the slide with Gram's iodin solution. Wash in water and examine. The stain brings out the granules, which are colored blue. The body of the bacillus stains brown.

As to the Wesbrook types, the majority of correspondents report that they are a satisfactory basis for diagnosis for twenty- and twenty-four-hour incubation periods. Two observers report them unsatisfactory in a few instances. All are agreed that the Wesbrook classification is of no diagnostic value for five- or eight-hour incubation periods when the organisms are stained in the ordinary way with Loeffler's methylene-blue.

The virulence test is made in some laboratories in cases of prolonged quarantine, and in a few instances on non-sick carrier subjects. One state institution conducts virulence tests of the organisms in all cases in which the duration of the quarantine is thirty days or over. Another conducts the test after five weeks. The isolation of the organism in pure culture is obtained by streaking on blood-serum. The animal used is commonly the guinea-pig. Death of the animal within four days after a subcutaneous inoculation, with localized necrosis at the sight of injection and successful recovery of the organism, is considered a positive test.

COMMITTEE ON THROAT CULTURES

AMERICAN MEDICAL ASSOCIATION

Sample Directions for Culturing

(Outfit contains two swabs in one test-tube and one culture-tube or culture-box.)

Throat Culture.—No local antiseptic application should be made for at least two hours previous to taking the culture. The patient's throat should be cleared of any adherent food particles, etc.

1. Have the patient in good light.
2. Rub the swab thoroughly against any membrane, exudate or inflamed area in the throat, revolving the swab in the fingers in such a way as to bring it thoroughly in contact with the suspected area.
3. *Do not lay the swab down* or allow it to touch anything other than the surface of the serum.
4. Insert the infected swab into the serum-tube and rub it gently back and forth over the entire surface of the serum, revolving the swab so as to bring it thoroughly in contact with the serum. Do not break the surface of the serum by pushing the swab through it. Do not use the medium if it is dry or contaminated.
5. Replace the infected swab in its own tube and replace the cotton plugs in both tubes.
6. Directions for sending to the laboratory.

Nasal Culture.—Cultures for release must be taken from both the nose and throat in all cases. Use one of the two swabs in the outfit for the nose and the other for the throat, rubbing both swabs on the same serum. Cultures for diagnosis may be taken from the nose alone or from the throat alone. If it is desired to take cultures for diagnosis from both the throat and nose, use a different serum-tube for each.

1. The physician should stand behind the patient, who should preferably be in a sitting posture.* Place the left hand on the patient's chin and hold the head firmly against the body of the operator. With the right hand insert the swab about one-half inch upward into the right nostril. Then raise the hand so that the shaft of the swab is parallel to the floor of the nose and with gentle rotation pass the swab back to the posterior pharyngeal wall. Withdraw the swab and repeat the process in the other nostril.
2. *Do not lay the swab down* or allow it to touch any object other than the surface of the serum.
3. Insert the infected swab into the serum-tube and rub it gently back and forth over the entire surface of the serum, revolving the swab so as to bring it thoroughly in contact with the serum. Do not break the surface of the serum by pushing the swab through it. Do not use the medium if it is dry or contaminated.
4. Replace the infected swab in its own tube and replace the cotton plugs in both tubes.
5. Directions for sending to the laboratory.

F. O. TONNEY, M.D., Health Department, Chicago,
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* If the patient's condition allows it.

Therapeutics

OBESITY

The first question to be considered in connection with this subject is what should be considered an excessive degree of fatness. This can be determined with a fair degree of accuracy for practical purposes from a consideration of the weight of the entire body. The weight of the bones, the muscles, and the viscera constitutes a nearly definite, but of course not exact, proportion of the weight of the whole body. The fluctuations in the same body during the different periods of life are mainly dependent on the increase or diminution in the amount of fat. It has been estimated that the proper weight of any individual may be determined by multiplying his height in inches by 2½. His minimum weight should not be less than twice the number of inches in his height, and his maximum weight should not exceed three times the number of inches in his height. Suppose, for example, a person 5 feet 8 inches in height; his minimum weight should not be less than 136 pounds, and his maximum weight not more than 204 pounds, while his ideal weight would be 170 pounds. But it must be remembered that the average weight varies in different decades, and many would consider these figures too high. Furthermore, it has been estimated that the fat of the whole body should constitute about 1/15 to 1/20 of the whole weight of the body. These figures give a fair index of when treatment should be undertaken.

Excessive fatness is seen in different kinds of subjects. First, there is the overfat person who is descended from ancestors one or more of whom have been unusually stout. That the tendency to fatness is frequently hereditary is indisputable, but it is difficult to understand why a special facility in the conversion of food into fat and its deposition in the body should be transmitted from parent to child. Second, there is the person who eats and drinks more than is necessary for his well-being, and yet who is apparently in good health aside from his fatness. Third, there is the person who eats more than is necessary, who exercises very little, and is anemic and has poor circulation and a weak heart.

The fat of the body is, theoretically, food which is changed into fat and is stored in convenient parts of the body to be used later on when necessity arises. Fat is the form in which reserve energy is stored in the body. It is believed that the chief source of the deposits of fat is the fats, the starches, and the sugars taken into the body as food, but it is probable that under certain conditions a part of the fat is formed from protein.

Undoubtedly the most common causes of acquired fatness are excessive eating, or the eating of excessive amounts, especially of foods rich in fat, sugar and starch. The habitual use of alcoholic drinks, especially of beer and ale, also promotes fatness, because they stimulate digestion and consequently assimilation. Furthermore, the alcohol furnishes material for oxidation, so that less of the tissues of the body undergo oxidation and removal.

An inadequate amount of exercise is another important contributing factor to this condition. Abundant exercise promotes oxidation and uses up a part, at least, of the surplus food which is ingested. People of sedentary habits ordinarily have a weak circulation, and this furthermore predisposes to sluggishness of the metabolic changes, lessened oxidation, and consequently increased deposition of fat.

The physiologic changes connected with the reproductive system are often attended by changes in the amount of fat in the body. Many children put on a large amount of fat during the second decade of their lives. Toward the end of this decade many of them lose a part at least of this excessive development. This is more apt to happen with boys than with girls. In the latter if the menstrual function is not established at the usual time and does not take place in a normal physiologic manner, the fatness often continues into and through adult life. In a somewhat similar way, after middle life, after the menopause in women in particular, and in men after castration, the weight is gradually increased, due to an excessive deposition of fat.

The excessive amount of fat present in the body is usually deposited about the breasts, shoulders, neck, and limbs in young people, while in older people it is deposited in the wall of the abdomen, around the hips, in the large omentum, and around the various abdominal and thoracic organs. Obesity occurs in children, but is most frequent in adults, in whom it is especially likely to make its first appearance toward middle life. It is rarely seen in very old people.

It is scarcely necessary to enumerate and describe the various systems of treatment which have been proposed and recommended for the cure of obesity. In undertaking the treatment of an obese patient, as in the treatment of all conditions, the first thing to do is to get a complete history. It should go without saying that the heart and lungs should be examined, and a thorough examination should be made of the urine. But special inquiry should be made of patients who present themselves for treatment for obesity in regard to the number and frequency of meals, and the food habitually taken at each meal; whether food is taken between meals; whether the food taken at meals is thoroughly chewed; whether it is eaten moist or dry; whether much fluid is taken with the meals, or between the meals; whether the patient takes exercise, when and how much he takes; and how willing he is to put himself to some inconvenience and perhaps discomfort to remedy his condition. Next the heredity should be discussed, and the age at which the weight began to increase above normal.

The next point to consider is, what result should be hoped for or should be aimed at in the treatment of the patient. By very great limitation of the diet the weight may be decreased rapidly, but a decrease in weight greater than two pounds in each week is not desirable, and is likely to be followed by dangerous results to the patient. While the patient is under treatment, his weight, with uniform clothing, should be taken and recorded every week, and the measurement of the circumference of his abdomen should be determined.

It is customary to consider the treatment of this condition under three heads: first, the diet; second, the exercise; and third, the medicine. Naturally the diet is considered first, as that is the foundation of the condition and of its cure. Various writers have given widely different advice in regard to what food should be allowed and what food should be forbidden.

Some have advised an exclusive milk diet in the treatment of obesity. This is not difficult to prescribe if the patient has confidence and is willing to follow the advice. While taking it the patient should be confined to bed, and should drink from two to three pints of milk a day. This treatment should not be continued for more than from five to ten days at a time, but may be repeated at intervals of two or three weeks. In many instances it has given very good results, but should not be advised unless the patient is under the constant observation of the physician.

The exclusively vegetable diet has been recommended by some writers. A strictly vegetable diet may be maintained for from four to six weeks, and then a small amount of meat may be allowed on alternate days. But a too restricted diet is usually not desirable.

While some allow the use of fat, it is fair to presume that the fat taken with the food forms the material most ready for transformation into fat in the body. Unless one disbelieves this, he will naturally advise his patient to abstain from fat of all sorts in his food. Cream, butter, the fat of pork, including bacon, and the fat of various forms of meat should be avoided. In regard to carbohydrates, the starches and sugars, these must be used in limited amount. It is better to reduce the sugar to a very small amount. Some advise forbidding it entirely and using saccharin in place of it for sweetening the food, but the utility of this course is, to say the least, questionable, and it is probably better to allow a limited amount of sugar for sweetening various articles of food which are habitually seasoned in this way. Starches should be reduced, but not entirely forbidden. If the history has been carefully taken, it will be learned whether the patient uses much potato or much bread. As these are the articles of diet which contain the greater part of the starch used, it will generally be found wise to diminish whichever of these two articles of food is chiefly used by the patient. It is in regard to the starches, sugars, and fats that the chief reduction in the amount of food taken should be used, but other foods should also be used in moderation, and particularly meat and eggs.

Much may be accomplished toward the reduction of the total amount of food taken by a regulation of the meals. In the first place, the taking of food between meals should be forbidden, and also evening lunches after the theater or before going to bed. The meals should be strictly limited to three. The breakfast, being with a large proportion of people a light meal, should be maintained in this way. As an example, for breakfast some fruit, as an orange or an apple, one or two eggs, with two not large pieces of bread or dry toast, and a glass of milk, or a cup of tea or coffee with a little milk and a very little sugar. Whole wheat bread or graham bread is less objectionable than white wheat bread. The other light meal is preferably taken at night, and should consist of a light supper, as for instance: a small piece of cold meat, one or two pieces of stale bread or dry toast, a salad of tomatoes, lettuce, or celery eaten without an oil dressing, and a glass of milk or a cup of tea or coffee, as at breakfast. The heaviest meal, the dinner, then, should be taken shortly after noon. It may consist of a light, watery soup, without the addition of flour and without any fat; meat or fish (fresh or salt) in moderation; potato; no bread; the various vegetables such as cabbage, spinach, cauliflower, turnips, carrots, parsnips, string beans; salad made of the various green vegetables which are in season; and a dessert of fruit such as strawberries in their season, peaches, oranges, grapefruit, apples, pears, and melons. The amount of liquid ingested with the food should be limited. All kinds of alcoholic liquors should be avoided. If the patient insists on taking an alcoholic drink, the least harmful are whisky and a sour wine like claret. It is perhaps wiser to allow no fluid with the meal, but to allow a single glass after the meal. Patients will eat less and will chew their food more thoroughly if they do not intersperse the mouthfuls of food with mouthfuls of drink. It is probably wise to limit the entire amount of fluid taken in the twenty-four hours to six glasses; one glass taken shortly after each meal and the others from half an hour to an hour before the meal. Taking the glass of water before eating will lessen the appetite and be the means of the patient taking less food. If the patient is lithemic, more water is indicated.

It is important in prescribing different articles of food to consider the matter of the patient getting a sufficient amount of bulk in the food to cause the more or less agreeable feeling of distention in the stomach which generally leads one to think of ceasing to eat more. If a person is so stout as to suffer discomfort from the condition, it is a matter which should arouse the sympathy of the other members of the family, and they should be willing to submit to the slight inconvenience of having the food for the whole family arranged somewhat with reference to the person who is undergoing treatment. If this can be arranged it will greatly simplify the treatment and make it much less irksome.

The majority of people who suffer from obesity take too little exercise. The history of the patient will have shown to what extent this is true with the individual under consideration. It is necessary to find, if possible, some exercise which the patient will take systematically and continuously and which will not be too irksome. Practically the best exercise is walking. If the patient is not used to walking at all, he should commence walking a short distance several times a day. The exercise should not be carried to the point of undue fatigue. It should be taken after each meal, and should be gradually increased so that the patient walks six or eight miles a day. It may not be practicable to divide this equally among the three periods after eating, but the aggregate should be about up to that amount. The walking should not be a leisurely saunter, but should be a brisk, business-like walk; and the patient should not divest himself of too much of his clothing, because one thing to be sought by the walking is a moderate degree of perspiration. It is rather better to take the exercise after eating than before eating, because if taken before eating the patient's appetite will be so increased that he will desire an unusually large amount of food, instead of being satisfied with an unusually small amount.

Cold bathing is an excellent adjunct to the exercise by walking. It should be followed by a vigorous rubbing, which not only exercises the muscles, but promotes the circulation.

In warm weather swimming is a most admirable form of exercise, combining both the exercise of the muscles and the advantages of bathing. The warm bath is frequently recommended, but is far inferior to the cold bath in usefulness. The Turkish bath has been frequently recommended, but it is of little value, as it simply causes exudation of water from the body which is promptly replaced from the tissues or by the fluids swallowed.

If walking and bathing systematically are impracticable, much benefit may be obtained by systematic calisthenic exercises. These should involve especially the muscles of the legs, hips and abdomen, and should consist of various movements of flexion, extension and rotation. It is not easy to persuade patients to follow these with regularity, but if they are used in this way they are exceedingly efficient.

Drugs come last, and are of the least efficiency. Phytolacca has been recommended as a drug which has a specific influence on the deposition of fat, for it was observed by someone many years ago that birds who ate phytolacca berries were entirely devoid of fat. For this reason preparations of the phytolacca berries have been tried in obesity, but reports of its favorable action are few and inconclusive.

The use of various mineral waters has been highly commended by some writers in the treatment of this condition. Cathell has especially praised the taking after each meal of a glass of Kissingen water, alternating daily with Vichy water. He believes that this has some specific action on the metabolism of fat so that it is not deposited in excess. Cathartics have been used, especially the saline cathartics, with the idea that in this way the amount of food assimilated might be diminished, but this sort of treatment is liable to result in damage to the patient.

Unquestionably the secretion of the thyroid has an important relation to the deposition of fat. A diminished secretion of this gland is commonly accompanied by a tendency to fatness, and an excessive secretion often tends to produce emaciation. Hence it has been proposed to administer the extract of thyroid to patients who were too fat. The dose ordinarily recommended is 3 grains, two or three times a day. In many cases this has seemed to produce favorable results, but it must not be continued too long, and its action must be very carefully watched, so that it may be discontinued as soon as unfavorable symptoms appear.

What has just been said in regard to the treatment of obesity has had reference to robust, well-nourished people who are fat. When the patient is fat, but feeble and anemic, it is necessary to bear in mind certain considerations which must influence the treatment. If the patient is anemic, iron should be systematically administered, and will frequently prove very beneficial in improving the general condition, although of course it will not have any special effect on the obesity.

If the circulation is feeble and the heart weak, it will frequently be advisable to prescribe digitalis to improve the strength of the heart and the force of the circulation.

In regulating the diet it is necessary to avoid reducing this below the needs of the body for nourishment, and especially should caution be observed in reducing the amount of protein taken.

A few points of practical importance it is well to remember are the following:

1. The last meal of the day should be light because there is likely to be less demand made on oxidizable tissues during the night.

2. In prescribing a diet it is necessary to remember and include a sufficient amount of nourishment to maintain the strength of the patient.

3. While water does not materially increase the deposition of fat, if taken with meals it is likely to lead to excessive eating.

4. In arranging the diet consideration must be given to obtaining a considerable bulk of ingested material without at the same time taking an excess of the nutritious elements of food.

5. Alcoholic stimulants should be entirely prohibited.

6. Exercise should be carefully and specifically prescribed, preferably in the form of walking or swimming.

7. The patient should be regularly weighed and measured, so as to determine the results which are being obtained.

8. A diminution in weight should not be effected too rapidly.

9. In prescribing both medicine and food care should be taken to avoid bringing on indigestion, and with it serious impairment of nutrition.

10. The object of treatment is to maintain normal nutrition, and at the same time to avoid overnutrition.

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[*For other information see second page following reading matter*]

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HEATING AND VENTILATION

It has long been the custom of hygienists to insist that ventilation or perflation of crowded rooms is necessary in order to remove poisonous emanations arising from the human body. More than twenty years ago, however, observations made to determine the nature of the alleged poisonous properties of the expired air and of "crowd poison" led to negative results. No toxic organic constituent could be demonstrated in the air of crowded rooms, and as for the carbon dioxid, it was so relatively slight in amount that it could not be held responsible for the physiological effects observed, and could at most be regarded as "a measure of danger." To what, then, are due the disagreeable consequences of remaining in an overcrowded, poorly ventilated room? There can be no doubt that such consequences are real and not imaginary, and that they range all the way from slight depression and headache to severe nausea, vomiting and collapse.

The answer to a question that has caused much perplexity seems to have been given by various physiologic experiments of the last few years. To put it briefly, the whole trouble seems to be due to a disturbance of the normal thermal relations of the body. It is a common observation that the depression and fatigue experienced on a hot, humid August day are very similar to the feelings that develop in a crowded "close" room. The cause is apparently the same in both cases, namely, interference with the normal rate of loss of body heat. At least three atmospheric factors may be concerned in such interference: high temperature of the ambient air, high moisture content and lack of air movement. Paul[1] kept healthy persons for several hours in a close cabinet until the carbon dioxid rose to 100 or 150 parts per ten thousand—more than ten times the amount usually stated as "allowable"—but so long as the temperature and moisture content were kept low no symptoms of illness or discomfort developed. Other experimenters have reached the same result by simply having electric fans whirled in such an experimental cabinet. The motion these imparted to the air was sufficient to facilitate a normal, physiologic loss of heat from the body in spite of high temperature and humidity. Similar cabinet experiments in which the subject was enabled to breathe the fresh outside air through a tube, but was otherwise subjected to the conditions of a close room, likewise showed that the symptoms attributed to "bad ventilation" are in nowise due to poisons excreted in the breath. The upshot of all such experiments is that it is not the chemical constitution of indoor air that is injurious, but the overheating, the stagnation and sometimes the moisture content.

Among the more important recent papers dealing with this question may be mentioned especially an article by Crowder[2] on the ventilation of sleeping-cars. In addition to an admirable critical summary of the experimental evidence on the subject the article contains valuable data from the writer's own study of car ventilation. Much of the discomfort experienced by sleeping-car travelers is undoubtedly due, as Crowder suggests, to overheating and not to insufficient air-supply. Important practical results may be looked for in the field of ventilation as soon as engineers come to realize and to apply the knowledge gained by hygienists in the past few years. We are likely to hear less about "impure air" and more about stagnation and overheating.

All this does not, of course, mean that there is no harm in crowded rooms or that the open-air treatment of tuberculosis is based on false assumptions The investigations cited merely substitute the right for the wrong interpretation of observed facts. Bodily resistance, as bacteriologists have shown us, may be lowered by a variety of factors. It might conceivably be diminished by the inhalation of "crowd poison," or by interference with the heat regulation of the body. The latter seems to be the true explanation of the undoubtedly injurious effect of overcrowded rooms. So far as tuberculosis is concerned, the predisposing effect of damp houses and damp climates is well known. The experiments recorded by the investigators mentioned above suggest that there are as yet undeveloped possibilities in the control of indoor climate. Precise knowledge of the factors concerned in producing the bad effects of overcrowding is the first step toward a scientific remedy for the condition.

CHLOROFORM FOR THE DISINFECTION OF TYPHOID CARRIERS

The sanitary problem presented by the so-called "typhoid carrier" is one of great difficulty, and any steps leading toward its solution merit special consideration. For this reason, a recent article by Bully[1] on the disinfecting power of chloroform on typhoid infections of rabbits is of interest, although as yet it appears to have little practical applicability. The work of Bully is in large part an experimental review of a previous investigation by Conradi.[2] The latter started with the assumption that chloroform, or similar lipoid-solvent narcotics, should have a special affinity for cell and bacterial lipoids, and by virtue of this should be able to penetrate and destroy intracellular bacteria. Experimental work on animals confirmed this assumption, and later work by Hailer and Rimpau[3] lends it strong support, as does that of Bully. Bully's method consisted in inoculating rabbits intravenously with a culture of typhoid bacilli, and in following this with daily rectal injections of 0.5 c.c. of chloroform, in emulsion, for variable periods, at the end of which the animals and their controls were killed and examined bacteriologically. In all, the experiment was carried through on forty-two animals, with forty others serving as controls. The chloroform injections were begun at various intervals after the inoculation, and were kept up for periods ranging to a maximum of ten days. Of the forty-two animals so treated, five (15 per cent.) could be shown still to contain living typhoid bacilli. Of the forty control animals, nineteen (48 per cent.) were still infected. In all cases in which the organism was recovered, it was found in the bile; occasionally, but much less frequently, in the spleen as well.

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[1] Paul: Ztschr. f. Hyg., 1905, xlix, 405.

[2] Crowder, Thomas R.: Arch. Int. Med., 1911, vii, 85.

[1] Bully: Ztschr. f. Hyg. u. Infektionskr., 1911, lxix, 20.

It is evident that the administration of chloroform had definite effect on the disinfection of the animals. But the dosage, approximately one four-thousandths of the weight of the animal is for a substance like chloroform relatively enormous. Calculated for a man of average weight (70 kg.) such an amount would mean the daily administration of almost 18 gm., or over half an ounce, of chloroform—altogether too large a quantity to be given with assurance of safety. The experiment has been tried of giving human typhoid carriers chloroform in more moderate doses—up to 2 c.c. daily—without any appreciable effect on the typhoid bacilli in their stools.

While in all probability chloroform itself is too toxic for use as a disinfectant of chronic typhoid infections, possibly other substances of the same general class may be found that will be active within the limit of safe dosage. It is almost too much, however, to hope for the finding of any disinfectant capable of freeing the body of the organisms without itself having some injurious action on the host.

CHEESE AS A FOOD

Important observations regarding the food value of cheese, and its cheapness by comparison with some other dietary staples, are to be found in a government report,[1] which details exhaustive experiments made not only in artificial digestion, but also with human subjects, the office of experimental stations of the Department of Agriculture cooperating. The Cheddar or American cheese in various stages of ripening was studied, as were also some foreign kinds of cheese. From this publication we learn there is no warrant for the popular theory that cheese, even when green or unripened, is difficult of digestion; or that unripened cheese, or cheese in any stage of ripening, is constipating. There is a marked difference in the physical characteristics of the cured and green products; the water-soluble material in well-cured cheese is high, while in the uncured product it amounts to almost nothing; no doubt these evident physical and chemical differences have been largely responsible for the popular and established misconception above stated. The milk solids are very digestible and make an almost perfect food. With the addition of rennet, and the development of lactic acid in cheese-making, some chemical changes take place; but it is rather difficult to explain why these should transform digestible solids in milk into indigestible solids in cheese. Nor can the experimenters understand why any sort of cheese, green or otherwise, should tend to constipation; the cause of the idea is probably that many people are fond of the mild-flavored curd and eat large quantities of it when it is constantly at hand. The digestive disturbances attributed to peculiarities in the cheese itself are probably due merely to over-eating, or to the custom of eating cheese only at the close of the meal, when one has already had more than enough food.

Skim-milk cheese, when sold as a whole-milk product, is a fraud that is a positive injury to the dairy business; but skim-milk cheese, stated and sold as such, is entitled to consideration by both producer and consumer. It is digestible and has a food value; made to have an agreeable taste it could be sold cheaply to poor people. Cottage cheese is another cheap and palatable product, much of which could be added to the dietary at a great saving in the total cost of food. Indeed, all kinds of cheeses, even the very highly flavored and so-called condimental cheeses, have a high food value.

Cheese contains, in unusually concentrated form, every essential to human sustenance. It has been held by epicures to be a stimulant to digestion, when taken with the salad, or at the end of the meal. But we now learn that it is digestible both as a condiment, and as the chief factor in a meal. Many European people eat largely of cheese, either by itself, or sprinkled on vegetables, or cooked with other food. Here, as in some other matters, America may learn much from the Continent. The Italians have many foods, such as macaroni, with which cheese is mixed. They have cheese grated and constantly at hand as a flavoring, quite as we use pepper and salt. The Swiss eat largely of cheese, which with bread forms the greater part of the dietary of this very healthy people; and those Swiss farmers who have settled in Wisconsin continue to manifest the athletic attainments and the physical endurance of their forbears. The sensible Germans consume large quantities of the cheap, but highly flavored skim-milk cheese, one popular kind of which is officially credited with "perhaps the most pungent odor of all the varieties of cheese made." The French also have some gorgeously flavored cheeses which the polite ask at table, not to have "passed this way," but to have "directed this way." Nevertheless such cheeses are wholesome; and their flavors are caused by beneficent microorganisms. One may here note the rejoinder to a gourmand who, having devoured some Roquefort, observed that, like Samson, he had slain his thousands and his tens of thousands: "Yes, and with the same weapon."

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[2] Conradi: Ztschr. f. Immunitätsforsch., u. exper. Ther., 1910, vii, 156.

[3] Haller and Rimpau: Arb. a. d. k. Gsndhtsamte, 1911, xxxvi.

[1] Doane, C. F.: The Digestibility of Cheese, Circular 166, U. S. Department of Agriculture, Washington, D. C.

The consumption of cheese by the American people should be increased, on the grounds both of economy and of superior food value. A pound of cheese has nearly the same food value as two pounds of lean meat or eggs, or the same weight of ham. In comparing cheese with meat, it should be noted that not only is the former superior in food value as measured by the cost of an equal number of calories, but also it furnishes nitrogen without the accompaniment of purins which will increase the amount of uric acid in the system. For this reason, it may be eaten by those inclined to gouty affections to whom meat is denied.

THE CHARGE AGAINST DR. WILEY

II. THE INDIANA CASE

We continue this week[1] the publication of some of the testimony brought out before the congressional committee which investigated the Wiley matter. This time we deal with the Indiana case, which, as our readers may remember, created considerable talk some years ago. As our readers, of course, know, Indiana has a pure food law and a good one. One of its requirements practically prohibits the sale of foodstuffs preserved with benzoate of soda. Two of the largest catsup manufacturing concerns which preserve their products with this chemical—Curtice Bros., of Rochester, and Williams Bros., of Detroit—finding that their business in Indiana was being injured, attacked the pure food law of that state and attempted to have it declared unconstitutional. These firms naturally wished to present as strong evidence as possible and attempted to have the referee board—which had declared sodium benzoate innocuous—give testimony in their case favorable to its use. As will be seen by the evidence we quote this week, Secretary Wilson sided with these firms and urged members of the referee board to testify in their favor. This they did either by deposition or by personal appearance at the court in Indianapolis—and the United States paid their expenses!

Nor was this all. As is well known, Dr. Wiley also had carried out a series of experiments to determine the harmlessness or harmfulness of sodium benzoate. His work was done before the referee board was created or even thought of; it extended over a longer period of time than that given to the same subject by the referee board and it was, moreover, carried out under Dr. Wiley's personal supervision. As he said at the hearing:

> "I gave personal attention to this work and did not delegate it to other people. I was at the Bureau on the coldest winter mornings long before daybreak to supervise the preparation of the breakfast for these young men and was there late to see that the supper was properly prepared."

As a result of his experiments, Dr. Wiley declared sodium benzoate harmful, a position which he has consistently maintained. Naturally the Indiana state officials in defending their pure food law from destruction, wanted to have his testimony; they also wanted to be permitted to submit to the court the findings of Dr. Wiley in his experiments. Did the federal officials cooperate with the officers of the State of Indiana in the latter's attempt to get all the facts on both sides? No. On the contrary, the Indiana officials had the greatest difficulty in obtaining from the Department of Agriculture Dr. Wiley's data. When Solicitor McCabe learned that they wanted Dr. Wiley to testify, he submitted a decision to the effect that they could not compel the Chief of the Bureau of Chemistry to go to Indianapolis and that if he did go, it would be on his own responsibility. This, of course, was paramount to ordering Dr. Wiley not to give testimony that would support the Indiana pure food law. In fact, as will be seen by the evidence, McCabe admitted that he "did not want Dr. Wiley to testify in this case."

The attitude of Wilson and McCabe in the Indiana case is the attitude they have shown in every case in which the interests of the people and the interests of the manufacturers clashed. We wish we had space to quote all the evidence that was given before the congressional committee; we feel sure, however, that what we do give this week will prove interesting and instructive.

Current Comment

FRANCIS TRUTH—A DIVINE HEALER UP TO DATE

Mr. "Francis Truth," divine healer, has recently been arrested in San Francisco. This is no new experience with him, however, since he has undergone similar experiences at Jacksonville, Denver, New York and no doubt other cities. A brief "appreciation" may, in the circumstances, not be amiss. In March, 1895, a half-page advertisement appeared in newspapers, setting forth the wonderful powers of "Francis Truth." This was not the man's real name, but was assumed as indicating the chief and most resplendent trait of his mellow character; his actual name seems to be N. H. Bemis. There was a portrait of "Truth" gazing calmly upward, as one in the confidence of the Infinite. Above his refulgent countenance, crowned with impressive locks, was pictured "Truth's Temple of Divine

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[1] Propaganda for Reform Department, p. 991.

Healing," in Boston. To the right were the lame, the halt and the blind who, in great numbers, were coming to the Temple; to the left were those who had just seen "Truth." There was no sickness, no lameness among them now; no tuberculosis, no cancer, no leprosy—nothing but health! Naturally they were happy, and were felicitating one another. Below the portrait were represented the scores of stenographers, who were busy attending to "Truth's" heavy mail, which had been sent him by the suffering and the afflicted. "Truth" stated: "I have cured every disease known to man. Through me He has thought wise to rejuvenate the power of Divine Healing, after it has lain dormant for nearly two thousand years. Perhaps I merited it. I have always led a good Christian life." An enthusiast stated in this advertisement: "What a busy man Francis Truth is! The sacred power of Divine Healing which has been intrusted to him—to one man among the many billions of men—is a mission for the public weal that gives him little time for the society of his wife and baby, whom he loves devotedly." A few months before this "Truth" was working on a salary of some twenty dollars a week. He looked about to see how this could be bettered. It would seem that reports of the large profits being made by medical charlatans stimulated his imagination—an admirable one when it got to work. He set up a healing establishment of his own. Within a few weeks his enterprise assumed the proportions indicated in the advertisement here reviewed. Half-page advertisements, by the way, cost a good deal of money, especially when they are to appear in metropolitan newspapers. Very shortly afterward he was arrested on the charge of using the mails for fraudulent purposes. He pleaded not guilty, and was released on bail. His case came up for trial on July 10, 1900. He retracted his former plea, and changed it to "guilty." On five charges he was fined the maximum penalty for each; he paid the fines—$2,500 in all. He could afford it. Between the times of his arrest and of his pleading guilty over 30,000 letters addressed to him, about all of which were believed to contain money, accumulated in the post office. These were returned to their senders. It would appear that subsequently other communities have been even "easier" than Boston in which to do business of this kind.

CHARITY AND STAMINA

It has often been observed that living organisms require for their fullest development a certain amount of resistance in their environments. The individual or the species for which things are made too easy loses the unused function. The butterfly helped from its chrysalis has imperfect wings; the man fed on soft foods has bad teeth. The parasite is always a weakling and sometimes a degenerate monster. The parasitic dodder, which draws all its sustenance from the sap of the host, is a plant without a root or a leaf. The hermit crab, which, instead of growing a shell for itself like other crustaceans, makes use of the cast-off shells of mollusks, is atrophied in some of its members and enfeebled in its whole organism. So with the intellectual environment and the mental qualities of man. The pauper and the pampered child of wealth are alike deprived of those qualities of initiative and self-reliance on which their respective environments make no demand. Unnecessary charity is twice cursed; it curseth him that gives and him that takes; all of which goes to prove (if proof were needed) that abuse of medical charity is as bad for the public as it is for the profession.

Medical News

CALIFORNIA

Personal.—Dr. Anna M. Flynn, San Francisco, fractured her left leg, below the knee, in a fall of 30 feet down a quarry embankment, August 27.——Dr. Fred T. Bond has been appointed president of the board of health of Vallejo, and Dr. Edwin A. Peterson health officer.

Against Advertising Specialists.—The San Francisco Board of Health has recommended the passage of an ordinance prohibiting medical specialists from advertising. The board declares that: "The claims toward curing diseases which are made by this class of fraudulent so-called practitioners are but a lure to attract the innocent and inexperienced."

Permanent Home for Society.—At the meeting of the Board of Councilors of the Los Angeles Medical Association, July 17, a resolution was adopted, providing for the formation of a separate committee to be known as the Permanent Quarters Committee to have control of the funds set aside for permanent quarters for the association. The committee consists of the president and secretary, exofficio, and Drs. H. Bert Ellis, Los Angeles; Fitch C. E. Mattison, Pasadena, and Walter Lindley, Los Angeles. The association has already a nucleus in the form of a term deposit of $803.56.

ILLINOIS

Report on Health of Employees.—The manufacturing department of the Pullman Company is said to be the first of the large employers of the state to comply with the new occupational disease act, and file its report with the State Board of Health. The report shows that of 433 employees, 378 were healthy.

Personal.—Dr. Perry H. Wessel has succeeded Dr. August H. Arp, resigned, as health commissioner of Moline.——Dr. Emerson M. Brewer, Rantoul, has been appointed district physician for the Illinois Central System.——Dr. Tyler Meriweather, has succeeded Drs. Cassidy and William J. Chenoweth as local surgeon for the Illinois Central system at Decatur.——Dr. Harvey L. Hensley, Oakwood, who has been seriously ill with typhoid fever in Minnesota, has returned home.——Dr. A. Albert Absher, Sibley, had three ribs broken by the overturning of his automobile, August 30.——Dr. J. K. Egbert, Sycamore, has sailed for Europe.

Chicago

Medical Esperanto Association.—The American Medical Esperanto Association (American Esperanto Asocio Kuracistoj) has been incorporated by Drs. Jacob Frank, Isaac J. K. Golden, Paul Gronnerud and others, to promote the study of Esperanto.

Personal.—Drs. Ludvig Hektoen and Anton T. H. Holmboe received the honorary degree of doctor of medicine, in connection with the centennial jubilee of the University of Christiania, September 8.——Dr. and Mrs. Philip F. Shaffner have returned from Europe.

How To Keep Well.—Under this title Dr. William A. Evans, formerly health commissioner, is conducting a department of public health daily in the *Tribune*. This department is devoted to the dissemination of information as to right living and to the stimulation of public interest in the subject.

New Head of Tuberculosis Institute.—James Minnick has been elected superintendent of the Chicago Tuberculosis Institute and secretary of the Illinois State Association for the Prevention of Tuberculosis. Plans will be worked out at once for the organization of local societies, the preparation of a traveling exhibit, and the examination for tuberculosis of employees in manufacturing establishments.

Free Serum.—The health department has announced that it is prepared to furnish antirabies serum free to all persons whose circumstances will not permit them to pay for the treatment in private institutions. The serum comes from the government laboratories at Washington. Physicians should send patients requiring this treatment to the Iroquois Memorial Hospital, 23 North Market Street, where they will be examined by the city's physicians and the health department notified. Individuals who have been bitten by dogs supposed to be mad will also be admitted to the hospital without direction from physicians.

INDIANA

Tuberculosis Cottage Dedicated.—The cottage at the Boehnue antituberculosis camp, Evansville, built and furnished by the local camp of the Woodmen of the World, was dedicated with appropriate ceremonies August 27.

Personal.—Dr. S. Kenosha Sessions, formerly a member of the staff of the Southern Indiana Hospital for the Insane, Evansville, has been elected superintendent of the Indiana Girls' School, Clermont.——Dr. Orion E. Maddox, Rockville, is reported to be seriously ill with ptomain poisoning.

City Takes Charge of Isolation Hospital.—At a meeting of the city council of South Bend, August 28, an ordinance was unanimously passed embodying the agreement between the commissioners of St. Joseph County and the city board of health, relative to turning the county isolation hospital over to the city. The agreement specifies that the city must provide a caretaker to be constantly on duty in the hospital, that patients from any part of the county shall be received at the hospital, and that no discrimination is to be shown in the treatment of the patients from different parts of the county.

Society Makes Recommendation Regarding Hospital.—The Knox County Medical Society at its August meeting made the following recommendations regarding the management of the Good Samaritan Hospital, Vincennes: That a medical superintendent be appointed, to be selected by the society and approved by the board of directors of the hospital; that he serve for a term of one year and be given the authority to appoint the head nurse; that he superintend the purchase of all medical and surgical supplies and appliances; receive and adjust all complaints, and that he be dean of the training school with full power to organize and superintend the same, and that the free use of the hospital be extended to the members of the society and their families.

IOWA

Personal.—Drs. J. Rea, William C. Kasten, John R. Walker, Charles F. Wahrer and France C. Roberts have been appointed by the Fort Madison Medical Association a committee of maintenance for St. Elizabeth's Hospital after the expiration of the term of the present board, September 15, until the Sacred Heart Hospital, now in course of construction, is ready for use.——Dr. William M. Morton, Iowa Falls, has moved to Southern California, and will be succeeded in practice by his youngest son, Dr. G. M. Morton, Marshalltown.

MARYLAND

Tuberculosis Dispensary Opened.—A dispensary for the free examination and treatment of persons afflicted with tuberculosis was opened in Federated Charities Building, Frederick, September 1. All the physicians of the city have offered their cooperation, and it is the intention of the local association to wage a vigorous fight against tuberculosis.

New State Hospital.—Sylvan Retreat, the Allegany County institution for the insane, is to be made a state hospital for the Western District of Maryland, embracing Washington, Allegany and Garrett counties. The institution has 102 inmates, of whom fifty-three are women. Eventually it is proposed to enlarge the hospital, creating male and female departments with industrial workshops.

Baltimore

Dr. Kelly Convalescent.—Dr. Howard A. Kelly, who was operated on recently in Rochester, Minn., is reported to be doing very well. Dr. Kelly had suffered from "dyspepsia" all his life, and recently the attacks became more acute, so that, while he was in camp, he decided to go at once to Rochester, Minn., where Dr. William J. Mayo operated, finding a badly-infected gall-bladder, with dense adhesions, especially of the duodenum, requiring two drainage tubes.

Personal.—Dr. Don P. Peters, for three years resident physician at the Church Home and Infirmary, has resigned and has been succeeded by Dr. Eugene Wright.——Drs. Harry Friedenwald and Joseph E. Gichner have returned from Europe.——Dr. Harry W. Stoner has recovered from a serious attack of septicemia.——Dr. Lewellys F. Barker sailed for Europe, September 2.——Right Rev. Luther B. Wilson, M.D., has returned after an absence of nine months in Africa, fully recovered from a fever which had lasted nearly ten weeks.

MICHIGAN

Medical Books Transferred.—On account of the overtaxing of the capacity of the Detroit public library, about 4,500 of its medical books have been transferred to the custody of the Wayne County Medical Society.

Sanatorium Notes.—Houghton County on August 22 awarded the contract for the construction of a county tuberculosis hospital, to cost $10,000.——Dr. Zell L. Baldwin is said to have been prohibited, by a restraining order, from maintaining a tuberculosis sanitarium in the residence portion of Niles.

Addition to a Hospital.—Ground has been broken for an addition to the Harper Hospital, Detroit, to cost about $400,000. The first building to be erected is to be six stories in height and of steel and cement construction. It is expected that the new addition will be ready for occupancy about Jan. 1, 1913.

Personal.—Drs. George L. Le Fevre and Frank W. Garber, Muskegon, sailed for Europe, August 26.——Dr. Charles L. Grube, formerly health officer of Saginaw, is reported to be seriously ill, as a result of overwork.——Dr. Ansel B. Smith, Grand Rapids, was operated on recently in Ann Arbor for appendicitis.

MINNESOTA

Home from Europe.—Drs. A. Torland, Minneapolis, and William C. Eichler, Underwood, have returned from Europe.

Hospital Dedicated.—Elliot Memorial Hospital, the first building to be completed on the new university campus, and the first and central building in the system of hospital buildings contemplated for the University of Minnesota, Minneapolis, was dedicated September 5.

Society Meeting.—At the annual meeting of the West Central Minnesota Medical Society, held in Morris, August 22, the following officers were elected: President, Dr. Amos Leuty, Morris; vice-president, Dr. J. G. Whittemore, Donnelly, and secretary and treasurer, Dr. Herbert L. Hulburd, Morris.

Association Merger.—At the joint meeting of the Southern Minnesota Medical Association and Minnesota Valley Medical Association, held at Rochester, August 3 and noted in The Journal of August 19, the associations were merged under the name of the Southern Minnesota Medical Association. It was decided that two meetings be held each year, the annual meeting to be held in Mankato, on the third Tuesday in January, and the semi-annual meeting on the first Tuesday after the first Monday in August, at such place as may be determined at the annual meeting. [illegible] were elected to serve until the annua[illegible] Dr. Louis A. Fritsche, New Ulm; first [illegible]n E. Crewe, Rochester; second vice-president, Dr. Hugh F. McGaughey, Winona; secretary, Dr. William T. Adams, Elgin; treasurer, Dr. George F. Merritt, St. Peter.

MISSISSIPPI

Fire in State Hospital.—Fire in the Mississippi Hospital for the Insane, Jackson, damaged the wards for negro inmates, several of whom escaped. Relatively little damage was done by the fire and all the patients were returned to the institution.

Personal.—Dr. and Mrs. Robert A. Strong, Pass Christian, have gone abroad.——Dr. J. E. Bayless, Hattiesburg, has been appointed health officer of Forest County, vice Dr. Lawrence B. Hudson, resigned.——Dr. Donald P. Street, Vicksburg, has been appointed local surgeon for the Yazoo & Mississippi Valley Railroad.

Cocain Use Among Negroes.—The Hinds County grand jury in its final report says: "The sale and use of cocain is alarming, principally among the negroes, who, in some sections of the county, when short of cash, have actually bartered their farm products for the drug. We trust good citizens will continue to assist the officers in rooting out this evil which is demoralizing labor and filling the jails with criminals."

MISSOURI

Personal.—Dr. John Punton, Kansas City, has returned from Europe.——Dr. J. R. Van Atta has been appointed pathologist by the hospital and health board of Kansas City.——Drs. David B. Robinson, Frederic C. Lamar, Fred B. Kyger, Frank C. Neff, William Marsh, Eugene P. Hamilton, James S. Hunter, Clarence S. Capell, Otho L. McKillipp and A. Isidor Anderson have been appointed physicians in the school inspection department of Kansas City.——Dr. Lynn G. Taylor has been appointed a member of the medical visiting staff of the Kansas City General Hospital, vice Dr. Arthur C. Leonard.

NEBRASKA

Ill and Injured.—Dr. George A. Byers, Snyder, sustained a fracture of the skull and other serious injuries by overturning of the automobile between Snyder and Scribner.——Dr. William M. Thomas, Beatrice, is seriously ill with typhoid fever.

New Medical Staff Appointed.—At the annual meeting of the directors of the Wise Memorial Hospital, Omaha, the following medical staff was appointed: Drs. Oscar S. Hoffman, Charles C. Allison, Robert Gilmore, John E. Summers, Byron B. Davis, August F. Jonas, James S. Goetz, Charles W. Pollard, Frank S. Owen, Abraham Romm, Adolph Sachs, Henry B. Lemere and Bernard A. McDermott.

NEW YORK

Personal.—Dr. James W. Russell, first assistant physician at the Willard State Hospital, has been appointed for similar position at the Matteawan State Hospital and Dr. William J. Tiffany, Binghamton, second assistant physician at the Binghamton State Hospital, has been appointed a member of the staff of the Matteawan institution.——Dr. Harley Heath, Albany, has been appointed physician of the Great Meadow Prison, Comstock.——Capt. Charles W. Farr, M. C., U. S. A., retired, Elmira, has been appointed physician at the State Prison, Sing Sing, vice Dr. Fred E. Lettice, resigned.——Dr. Fred M. Meader has succeeded Dr. W. W. White as city bacteriologist of Syracuse.——Dr. George Lenz has been elected president and Dr. E. D. Hagedorn secretary of the medical staff of the Nathan Littauer Hospital, Gloversville.

New York City

Dinner to Italian Physician.—The Italian Medical Society of New York gave a testimonial dinner to Prof. Dr. P. G. Spinelli, professor of gynecology in the University of Naples, September 4. Dr. Spinelli is making a study of hospital conditions in the United States with especial reference to gynecology and surgery.

Personal.—Dr. Theodore C. Janeway has been elected a member of the board of scientific directors of the Rockefeller Institute for Medical Research, vice Dr. Christian A. Herter, deceased.——Dr. J. Conger Bryan is said to have been committed for five days to the psychopathic ward of Bellevue Hospital, September 2.

Glasgow Physician Guest of Society.—On the occasion of the visit to New York City of Dr. Albert A. Gray, Glasgow, a meeting is to be held at the New York Academy of Medicine, September 20, under the auspices of the Eastern Medical Society of New York, which the medical profession is cordially invited to attend.

Reduction of Infant Mortality.—The Committee for the Reduction of Infant Mortality, satisfied with the results of the allied agencies in their warfare against diarrheal diseases this summer, plans now to turn its attention to a demonstration against the deaths of babies due to congenital troubles. Diarrheal or gastro-intestinal diseases cause about 38 per cent. of all infants' deaths. Congenital troubles, however, are second with about 17 per cent. of the total. Remarkable success has been attendant on the efforts against diarrheal diseases this summer as the figures given out week by week from the board of health attest, but in order to reduce infants' deaths to an unpreventable point, other causes must be attacked with equal intelligence. Special attention is now to be paid by the committee to 1,000 mothers who await the arrival of offspring, in an endeavor to bring to bear all of the community's resources which will enable the mothers to give to the world well children, strong enough to combat the many foes which city life has reared to assail them on every hand. An intensive study is to be made of these 1,000 cases preliminary to a genuine campaign along these lines next summer. Already the committee has begun this task and has 500 expectant mothers under the guidance of its nurses. An arrangement has been made with the Russell Sage Foundation which will detail a special nurse to devote all of her time to this work. The number of expectant mothers under guidance will be increased at once by another 500. All of the mothers will first be given a careful physical examination in order to detect disease or other ailments dangerous to the welfare of the coming child. In the meantime, the nurses will be instructing the women in methods of proper care of themselves, preparatory to the coming of children. The beneficial results of exercise are to be pointed out, a proper diet, regularity of sleep and freedom from worry prescribed. Whenever an expectant mother is forced to overwork, help will be provided for her that she may save her strength to give to the coming child. The use of drugs, beer and whisky are strongly advised against. The nurses are to make arrangements for the women to go to hospitals in ample time. If they do not care to do this, a physician is to be provided and proper nursing. No midwives are to be allowed to handle any of the 1,000 cases which the committee proposes to direct. The wishes of nationalities, such as the Italians, who do not like to have men doctors in attendance on confinement cases, will be respected and women physicians provided for them. After confinement rest will be provided for the mothers and the children referred to the milk stations. The babies born will be watched with extreme care during the first month and a careful record of results. Last year about one-third of all infant deaths occurred among children who were not yet 1 month old. The committee will endeavor to prove from the 1,000 cases that this one-third can be materially lowered. If the study prove this to be true an active general campaign will be undertaken next summer along these lines. A circular is also ready to deliver among expectant mothers, giving them information concerning the proposed work and instructing them how they may best give birth to healthy children.

OHIO

City Official Assaulted.—Dr. Sample B. McKerrihan, city physician of Portsmouth, while carrying out his official duties respecting quarantine of a house in which a child was ill with diphtheria, was dangerously wounded by the father of the child, August 22. His assailant has been charged with assault with intent to kill.

Ill and Injured.—An attempt was made, August 28 by an inmate of the Ohio Soldiers and Sailors' Home, Sandusky, to shoot Major John Haynes, chief surgeon of the institution. ——Dr. Louis H. Frechtling, Hamilton, was operated on for appendicitis, August 23, in Mercy Hospital.——Dr. James J. McClellan, Columbus, is reported to be improving.——Dr. John W. Nixon, New Philadelphia, was seriously injured in a runaway accident, August 15.

Personal.—Dr. Charles O. Probst, Columbus, for twenty-five years secretary of the state board of health, sails September 28 for Vienna.——Dr. John C. George, assistant physician at the Dayton State Hospital, has been selected superintendent of the Miami Valley Hospital.——Dr. E. A. Baber, assistant physician at the Dayton State Hospital, has been appointed superintendent of that institution, vice Dr. Arthur F. Shepherd, Dayton, who becomes a member of the State Board of Control of Ohio Institutions.——Dr. Frank McCafferty has been appointed a member of the Columbus board of pension examining surgeons, vice Dr. James U. Barnhill, deceased.

PENNSYLVANIA

Personal.—Dr. Malcolm Z. Gearhart, Reading, who was operated on in Jefferson Hospital for appendicitis, is recovering. ——Dr. Augustine C. Luhr, formerly of Philadelphia, has moved to St. Mary's.

Fourth District Meeting.—About seventy physicians from Lancaster, Lebanon and Dauphin counties met at Mount Gretna, August 30, for the annual meeting and outing of the Fourth Censorial District Medical Society. Notwithstanding the cold and rain which prevailed the members kept up their spirits and the meeting was very successful. The following officers were elected: president, Dr. John B. MacAlister, Harrisburg; vice-president, Dr. Hugh Hamilton, Harrisburg, and secretary, Dr. Dewitt C. Laverty, Middletown. New by-laws were adopted, one of which changes the name of the association to the Association of Physicians of the Fourth Censorial District of the Medical Society of the State of Pennsylvania. Resolutions were unanimously adopted commending Dr. Harvey W. Wiley for his course in the war against adulterated foods.

Philadelphia

Back from Europe.—Drs. Howard F. Hansell, Judson Daland, S. Lewis Ziegler and Harvey Shoemaker have returned from Europe.

Spinelli in Philadelphia.—Dr. Pier Giuseppe Spinelli, professor of gynecology in the University of Naples, Italy, was the guest of honor at a reception given by the Italians of this city, September 8. He remained for a week, visiting the clinics of the various hospitals.

Gifts to Hospitals.—The will of the late Elizabeth C. Reakirt includes contingent bequests of $10,000 to the Children's Hospital under the care of the Ministerium of the Lutheran Church and of half of the residue of her estate to the German Hospital.——Dr. Gertrude A. Walker has given $1,000 to endow a baby's bed in the maternity of the Woman's Medical College Hospital.

Sterilizing Plant for Marcus Hook.—On September 8, the State Quarantine Board awarded a contract to the Kensington Engine Works to install a steam sterilizing and formaldehyd plant at Marcus Hook for $3,305. The plant will be able to sterilize 200 blankets at one time.

Typhoid Checked.—Typhoid fever in the Twenty-Second and Thirty-Second wards has been traced to the infection of milk from cows that were watered in polluted streams. The cases in the Thirty-Second Ward caused the city authorities much alarm as that section of the city is supplied with unfiltered water. Investigation showed, however, that the water while cloudy contained no infection. The residents of this section have presented a petition to city councils demanding that the work on the Queen Lane filter plant be rushed to completion.

SOUTH CAROLINA

Personal.—Dr. Morris J. Alexander, Tunica, has been appointed clinical assistant in pediatrics in the Medical College of Virginia, Richmond.——Dr. Frank B. Sanders, Hagood, has been appointed physician to the Minnesota state reformatory, St. Cloud.——Dr. A. M. Wylie has been appointed city physician of Chester.

TENNESSEE

Health Talks in Nashville.—The Public Health Department of the General Federation of Women's Clubs announces the following topics for use by all federated clubs in Nashville and by the organizations of women which desire to cooperate: October, "Community Health: Know-Your-City Campaign;" November, "Social Hygiene: Education in Home and School;" December, "Tuberculosis: Ventilation and Fresh Air;" January, "Mouth Hygiene: Tooth Inspection Day;" February, "Clean Food: How and Where to Find It;" March, "School Hygiene: Medical Inspection;" April, "Conservation of Vision: Prevention of Blindness;" May, "Infant Mortality: Don't Kill Your Baby," and June, "Food Sanitation: Needless Summer Dangers."

WISCONSIN

Work Starts on County Asylum.—Work was started September 11 on the new Shawano County insane asylum, Shawano. The building will be completed within a year.

Personal.—Dr. Robert A. Kitto, Racine, was seriously injured by being run down by an automobile, August 30.——Dr. Arthur H. Sanford, professor of physiology in Marquette University, Milwaukee, has resigned to take charge of the laboratory of the Drs. Mayo, Rochester, Minn.——Dr. Willard A. Pease, Rio, who was operated on recently for appendicitis, is reported to be securely convalescent.

GENERAL NEWS

Southwestern Physicians to Meet.—The Southwestern Medical Association, which includes the states of Missouri, Kansas, Oklahoma, Arkansas and Texas, will hold its annual meeting in Oklahoma City, October 10 to 12.

Annual Meeting of Missouri Valley Medical Association.—At the annual meeting of the Missouri Valley Medical Association held in Omaha, September 7 and 8, the following officers were elected: president, Dr. John M. Bell, St. Joseph; vice-presidents, Drs. Arthur C. Stokes, Omaha, and Dr. S. Grover Burnett, Kansas City; treasurer, Dr. Oliver C. Gebhart, St. Joseph; secretary, Dr. Charles Wood Fassett, St. Joseph. Colfax, Ia., was selected as the next meeting place.

Medico-Actuarial Investigation.—The medico-actuarial investigation which is now being made under the auspices of the Actuarial Society of America is a most important one. The experience of companies from 1885 to 1908 is being tabulated. The scope of t[illegible]uded a study of sixty-eight groups of [illegible] hazards and seventy-six of medical impairments. The figures are being tabulated in order to provide an accurate standard of heights and weights, and to determine the influence of build and occupation on longevity.

Cumberland Valley Physicians' Meeting.—At the ninth annual meeting of the Cumberland Valley Medical Association, held at Mount Holly Inn, near Carlisle, Pa., August 31, the following officers were elected: president, Dr. W. Frank Skinner, Chambersburg; vice-presidents, Drs. John C. Gilland, Greencastle; Luther H. Keller, Hagerstown, and David W. Van Camp, Plainfield; secretary, Dr. John J. Coffman, Scotland (reelected for the tenth time); assistant secretaries, Drs. Leslie M. Kauffmann, Kauffmann, Pa.; John R. Laughlin, Hagerstown, Md., and Edward Roberts Plank, Carlisle, Pa., and treasurer, Dr. R. P. Koons.

Societies to Meet.—Among the society meetings that are to occur in September are the following:

Amer. Acad. of Ophthal. and Oto-Laryngol., Indianapolis, Sept. 25-27.
Amer. Assn. of Obstet. and Gynecol., Louisville, Ky., Sept. 26-28.
American Roentgen Ray Society, Richmond, Va., Sept. 20-23.
American Urological Association, Chicago, Sept. 26-27.
Assn. of Military Surgeons of United States, Milwaukee, Sept. 26-29.
Indiana State Medical Association, Indianapolis, Sept. 28-29.
Michigan State Medical Society, Detroit, Sept. 27-28.
Pennsylvania State Medical Society, Harrisburg, Sept. 25-28.
W. Va. State Med. Assn., White Sulphur Springs, Sept. 20-22.

Electrotherapeutic Association Meeting.—The twenty-first annual meeting of the American Electrotherapeutic Association was held in the College of Physicians, Philadelphia, September 5-7. The following officers were elected: president, Dr. William D. McFee, Haverhill, Mass.; vice-presidents, Drs. F. Howard Humphris, London, Eng., and George E. Pfahler, Philadelphia; treasurer, Dr. Emil Heuel, New York City; secretary, Dr. J. Willard Travell, New York City; registrar, Dr. Frederick M. Law, New York City, and trustees, Drs. Frederick deKraft, Haverhill, Mass., and Francis B. Bishop, Washington. The next meeting will be held in Baltimore in September, 1912.

CANADA

Academy Moves.—The Toronto Academy of Medicine has moved into large and commodious quarters in Queen's Park.

"King Cook" is Dead.—James Cook, who was known as "King Cook" to thousands of graduates of the medical department of McGill University, Montreal, and who for forty years was janitor in that institution, died August 15.

Hospital Notes.—The pathologic wing of the new Toronto General Hospital is almost ready for occupancy.——The new hospital for the insane at Coquitam, B. C., is progressing rapidly toward completion.——St. Mary's Hospital, New Westminster, B. C., is to be enlarged at an expense of $20,000.

Society News.—The Maritime Medical Association has voted itself out of existence, the step being taken in the interests of the Canadian Medical Association.——The British Columbia Medical Association held its annual meeting at Vancouver, August 30 and 31.——The first annual meeting of the Canadian Public Health Association will be held in Montreal, November 21 to 23.

Tuberculosis Sanatorium Open.—A new sanatorium for consumptives at Ste. Agathe des Monts, was recently opened. The institution is situated in the Laurentian mountains and is a little more than 100 miles from Montreal. The building is modern, the equipment admirable and the institute has at the present time a capacity of fifty beds. It has been erected by and is maintained under the auspices of the Laurentian Society.

Montreal Death Rate.—The death-rate in Montreal in 1910 was 22.40 per 1,000 as compared with 22.03 for 1909. There were 10,221 deaths during the year, 16,616 births and 4,386 marriages. In 1907 there were 919 deaths from tuberculosis; in 1908, 1,000; in 1909, 1,114; in 1910, 1,336, the increase being probably due to more complete returns. During 1910 8,749 cases of communicable diseases were reported.

Personal.—Prof. Dr. J. George Adami, Montreal, has started for the tuberculosis conference in Rome.——Dr. William Warwick has resigned as pathologist at the General Hospital, St. John, N. B.——Drs. Alexander S. Monro, Vancouver, John N. Elliott Brown, Toronto, and Dr. Duncan Graham, Toronto, have returned from Europe.——Drs. Charles O'Reilly, Toronto, and John H. Leeming, Winnipeg, have started for Europe.——Dr. Bruce of London, England, has been appointed superintendent of the London (Ont.) Tuberculosis Hospital.——Dr. J. Wilfrid Good, Winnipeg, was operated on recently at Rochester, Minn.——Dr. Duncan Graham has been appointed lecturer on bacteriology at Toronto University.

Tuberculosis Sanatoriums in Canada.—Dr. Charles D. Parfitt, Gravenhurst, Ont., reports in the *Dominion Medical Monthly* for August that there are now more than twenty tuberculosis sanatoriums in Canada. The movement was initiated in 1897. Twelve of these sanatoriums are in Ontario with a capacity for 547 beds, and treated during the last year 1,421 patients. It is estimated that there are at present in Ontario 10,000 cases of active tuberculosis and that 171,000 of those now living in the province will die from tuberculosis at the present rate. The death-rate from tuberculosis has diminished in Ontario and this, Dr. Parfitt believes, demonstrates and shows the value of sanatoriums. In 1897, when the sanatorium movement began the death-rate was 150 per 100,000, while in 1908 the rate from this cause was reduced to 112 per 100,000. The percentage of death from tuberculosis in 1908 was 7.7, which compares favorably with the rate of 11.0 which was reported in 1901.

LONDON LETTER

(From Our Regular Correspondent)

London, Sept. 2, 1911.

Annual Exhibition at the Royal College of Surgeons: The Prehistoric Races of Europe

Among the specimens added to the Museum of the Royal College of Surgeons, shown at the annual exhibition which has recently been opened, is one of unusual interest to those who are investigating prehistoric races. Hitherto no remains of a Bushman-like race have been found in Spain or France. However, during last winter Col. Willoughby Verner discovered in an unexplored cave in Spain fragments of the skeleton of a man covered by stalagmite and fossilized, of pigmy stature (4 feet 10 inches) and showing decided affinities to the Bushman type. Colonel Verner presented these remains to the museum, where they may be seen side by side with nine skeletons of Bushmen excavated from old graves in the Kalahari Desert. Prehistoric research is showing how abiding some of the types of mankind are, but it will be a remarkable revelation if it shall be finally proved that in the almost extinct race of South-African Bushmen we have representatives of the natives of Spain at the close of the glacial epoch. The Bushmen, the most specialized and peculiar of the negroid races, show a curious mixture of the adult and juvenile characters in their skeletons.

The Incidence of Anthrax

In spite of every precaution which science can suggest and a benevolent government enforce cases of anthrax continue to occur among workers in skins and hides. An important report on the incidence of anthrax and the means of preventing the disease has been presented to the Company of Leathersellers by Dr. Constant Ponder, bacteriologic assistant at the Leathersellers Company's Technical College. He finds that about 40 per cent. of all cases of anthrax that occur are due to handling Chinese or East Indian goods. Cutaneous infection is the most common, pustules on the head or neck occurring in 82 per cent. of the cases. No case of pulmonary anthrax, such as occurs among the Bradford woolworkers, has been observed in the workers in skins and hides and only two cases of intestinal anthrax in the last seven years. The point of greatest importance made by Dr. Ponder is that the anthrax spore is most likely to be found in discharges dried on fur or in blood spilled when the animal was flayed, and dried on the fur, and at the cut end of cutaneous capillaries. Hence the problem is how to destroy the spores when protected by a thin layer of blood, mucus, or fecal material without damaging the hides. Having studied the methods suggested from time to time at home and abroad Dr. Ponder recommends one based on the fact that no case of anthrax has ever been traced to wet, salted hides. He therefore recommends that all hides and skins should be imported in this state.

The same result can be achieved, adopting the method suggested by Mr. Seymour Jones, chairman of the International Commission for the Preservation, Cure and Disinfection of Hides and Skins. By this method the hides are practically converted into the wet salted state. They are soaked for twenty-four hours in a solution containing 1 per cent. formic acid and 0.02 per cent of mercuric chlorid and then transferred to the ordinary brine bath. This method destroys infection and does not interfere with the subsequent transformation of hide into leather.

The Dangers of Flannelette

Scarcely a day passes without a record in the press of some sad fatality, of which a helpless child is generally the victim, due to clothing made of flannelette catching fire. And yet, in spite of the verdict of a special home office commission, which investigated the matter, and that of coroners and juries throughout the country, who unite in condemning this material (which becomes more and more dangerous each time it is washed) no steps have yet been taken to decrease the heavy annual death-roll from this cause. In a pamphlet with the above title, the National League for Physical Education and Improvement makes out a strong case for legislation, basing its facts on evidence taken from blue books, on statements made by coroners, and on an independent investigation, recently carried on at the league's instigation by the *Lancet*. Deaths from burning, especially among children, are shown to be on the increase, and it is computed that of these deaths no less than a thousand a year in the United Kingdom may be ascribed to the fact of the victim having been clothed in ordinary flannelette. Nor is this surprising, when one realizes that if a child's flannelette garment becomes ignited that child is doomed if no person arrives within about three seconds to save it.

Some manufacturers appear to be alive to the dangerous nature of flannelette and are trying to remedy matters by making it with a short, close nap. But even this is not, according to the *Lancet's* tests, as trustworthy in regard to safety from fire as flannelette which has been treated by a lasting, chemical, fire-proofing process. Such flannelettes have been on the market for some time now. The danger to the public, however, lies in the fact, as proved by the *Lancet*, that not only is flannelette still sold at large with no pretensions to being non-inflammable, but flannelette is also sold which wrongly claims to be non-inflammable.

Here then, as a first step, is where legislation is urgently needed. It should be made penal, as recommended by the home office commission and the Lancet, to describe as uninflammable materials which will not stand certain prescribed tests for inflammability.

Tuberculosis Among Railway Clerks

An investigation of the prevalence of consumption among railway clerks has just been completed by the Railway Clerks' Association. It is found that 42 per cent. of the deaths among these clerks are due to the disease as compared with 25.8 in the general population. The officials of the association express the view that consumption is an occupational disease, which is encouraged by the unhealthy surroundings in which many railway clerks are obliged to work and that much could be done if the standard of sanitation and ventilation imposed under the factory acts were made obligatory in railway booking and other offices. A bill has been prepared with this object and will be presented to Parliament in due course. One of the large railway companies, the Midland, has decided to give immediate effect to some of the recommendations for checking the growth of the disease and have announced that when clerks are attacked they will allow six months leave with full pay.

PARIS LETTER

(From Our Regular Correspondent)

Paris, Aug. 25, 1911.

Death of Professor Dieulafoy

Dr. Georges Dieulafoy, former professor of clinical medicine at the Faculté de médecine de Paris, has just died rather suddenly, aged 62. He was born in Toulouse and first studied medicine at the Ecole de Médecine of that city. Then he came to Paris, where he became the favorite pupil of the celebrated clinician, Trousseau. He received his doctor's degree in 1869, and was appointed *agrégé* professor in 1875. Twelve years later he obtained the chair of internal pathology at the Faculté de médecine de Paris. He was at first physician at the Necker hospital, and in 1869 went to the Hôtel-Dieu as professor of clinical medicine where he succeeded his master, Trousseau. In 1891 he was elected member of the Académie de médecine and was later chosen president of the academy. He had retired from his professorship two years ago.

The first work by which he became well known was his treatise on the aspiration of morbid exudates, published in 1873. Dieulafoy's aspirator has for a long time been employed for the evacuation of pleuritic fluids. Dieulafoy also drew the attention of physicians to the signs of obscure diseases and in particular to those of the insidious condition which he called *petit brightisme*. In later years he was occupied, with an evident predilection, with medicochirurgical questions, such as the treatment of appendicitis, early operations in ulcerating gastritis and diseases of the liver, kidney, etc. Dieulafoy's principal claim to distinction rests on his "Manual of Internal Pathology" from which many generations of students have been taught and which has gone through sixteen successive editions since 1880. He also issued the "Clinique médicale de l'Hôtel-Dieu" in six volumes.

Dieulafoy was not a laboratory man, but his remarkable facility for assimilation permitted him to put himself rapidly in touch with laboratory discoveries and to use them in his teaching. What especially contributed to his success as an instructor, however, was his great facility of language—his oratorical ability. It might even be said that his eloquence carried him a little too far sometimes. He was a little too fond of formulas. Thus about twelve years ago he made a sensational communication to the Académie de médecine which was summed up in the striking epigram that "no one ought to die of appendicitis," which is as much as to say that appendicitis should be operated on immediately in every case. Surgeons naturally hastened to follow his advice to such a degree that in 1906 Dieulafoy again mounted the tribune of the Académie de médecine, this time to reproach surgeons with operating too much. Many people merely affected with mucomembranous typhlocolitis, he said, were unnecessarily operated on for a non-existent appendicitis.

The Twenty-First Congress of Alienists and Neurologists

The twenty-first Congrès des médecins aliénistes et neurologistes de France et des pays de langue française was held August 1 to 6, at Amiens. It was not so successful as in previous years, owing perhaps to a defect in organization. The sessions of the congress were scattered in a way, being held now at Amiens, now at Boulogne-sur-Mer and now at the asylum of Prémonté, the members of the congress having to go to these various places at their own expense, which more than doubled the usual cost of 20 francs ($4). Another more important cause of unsuccess to which Dr. Deny, physician of the Salpêtrière and president of the congress, called attention in his opening address, consists in a certain coolness between the neurologists and alienists. This is due perhaps to the fact that psychoneuroses form a kind of debatable ground. Three interesting questions were considered.

VALUE OF LEGAL EVIDENCE GIVEN BY PERSONS OF UNSOUND MIND

Dr. R. Lalanne, head physician at the insane asylum of Maréville, Nancy, showed how the ordinary variation of evidence emphasized by recent researches in experimental pathology, the disturbances of perception (illusions, sensorial disturbances of the aged, etc.) gradually lead onto pathologic ground—to the evidence of persons of unsound mind whose mental disturbance is not suspected by the public or by the judges. The value of the evidence of these unsuspected insane persons is essentially variable. Lalanne, therefore, insisted particularly on the utility of having the judges rely on the assistance of a psychiatrist whenever they suspected a morbid mental condition in the witness. The expert should not pass on the evidence itself. He should confine himself to declaring whether the condition of the witness' mind is or is not such as to cast doubt on his evidence.

On the motion of Dr. Rémond of Toulouse, the congress passed two resolutions, one declaring that the evidence of any person who is or has been mentally unsound should be legally declared under suspicion, and the other emphasizing the value for judges of a course including medicolegal psychiatry.

Professor Ladame of Geneva drew attention to the severity of the law against perjured testimony. Since there are undoubtedly many psychopathic persons among the public at large, he offered a resolution which was passed to the effect that before conviction for perjury the court should have the mental condition of the perjured witness examined. The congress also passed a resolution offered by Dr. Ley of Brussels demanding that the methods of psychologic experiment should be used to test the evidence given by the insane.

TUMORS OF THE PITUITARY

Dr. Courtellemont of the Ecole d'Amiens divides the symptoms which indicate tumors of the hypophysis into results of the mechanical disturbances (signs of cerebral compression, properly speaking, headache, vomiting, vertigo, nerve compression and especially ocular troubles, etc.), and dystrophic conditions. As for the latter the present tendency is to attribute acromegaly and gigantism to the hyperfunction of the gland, and the adipose-genital syndrome to the hypofunction. There would thus be opposition between the two syndromes of hypofunction and hyperfunction. From the therapeutic point of view it seems certain that we are no longer helpless with regard to pituitary tumors. Even though opotherapy appears to be only a symptomatic treatment, radiotherapy has given very appreciable functional and physical results. In particular it diminishes the phenomenon of encephalic compression and ameliorates visual troubles. Partial hypophysectomy has given very good results in the hands of von Eiselsberg, Hochenegg, and others. It alone of all the therapeutic methods seems to have succeeded in causing the regression of acromegalic deformities. Nevertheless, in view of the still very formidable seriousness of the operation, Dr. Courtellemont thinks that it should be reserved for cases which resist opotherapy and radiotherapy.

Dr. Paul Sainton of Paris emphasized the special characteristics of glycosuria in cases of tumors of the hypophysis. The proportion of sugar is much higher than in other glycosurias of nervous origin. Moreover the glycosuria is accompanied by all the symptoms of real diabetes, polyuria, polypnagia, polydypsia, so that the expression, "hypophyseal diabetes" is entirely justified. These facts should be compared with the cases of diabetes in that other syndrome of hypofunction, namely, Basedow's disease (hyperthyroidism).

THE VARIOUS CLASSES OF PSYCHOPATHIC PAINS

The most important part of the paper presented by Dr. G. Maillard, assistant physician at the Salpêtrière, is the therapeutic portion. Should operation be performed for psychopathic pains? A distinction should be made among these. If there is an important lesion which in itself is an operative indication, evidently operation should be done and it may be hoped that the pain will disappear or at least a remission or attenuation be obtained according as the psychic or organic factor predominates. In cases in which there is no organic lesion apparently capable of producing psychopathic pains no operation should be done. Operation, real or pretended, would serve no purpose and in pains of paranoiac origin such operation would only furnish new ground for delusion. But between these two extreme cases there are many intermediary cases in which the proper course to follow is open to discussion. These are the cases in which the psychopathic pains seem connected with a lesion which in itself does not absolutely require operation but in which an operation would be justified as thereby the pains might be made to disappear. These embarassing cases are found, for example, in displacements of organs, movable kidney, uterine prolapses, etc. In such cases to try to do the best for the psychic condition and for the lesion is often very difficult. If the pain is a manifestation of a hysterical organic association the best chances of improving the condition of the patient or of effecting a cure are to be found in appropriate surgical measures together with psychotherapeutic measures.

Dr. Picqué of Paris emphasized the fact that a cerebral condition of the patient may constitute a contra-indication against an operation which would be indicated in patients whose mental condition is normal. Of course, in urgent cases operation should be done whatever the mental condition of the patient. But in elective surgery (for example, early operation on uterine fibromas), the mental condition should be reckoned with. Picqué believes that before any operation the mental condition of the patient should be examined as regularly as the urine.

PAINS AND PSYCHIC PHENOMENA

Apart from the three main questions of the day discussed in the congress an interesting paper was read by Dr. André Léri, *agrégé* professor at the Faculté de médecine de Paris, tending to show that contrary to the general opinion, pain is not an intellectual or even a cerebral phenomenon. Pain exists in the absence of brain. Léri had an opportunity to examine repeatedly an anencephalus which lived three days. The child cried and struggled when it was pinched at the level of the limbs or of the face. It showed evident signs of pain. At the autopsy not only was no brain discovered, but there was not even a trace of protuberance. There was indeed a trigeminal nerve and Gasserian ganglion on each side, but from the ganglion the efferent nerve lost itself in the fibrous tissue on the border of the temporal bone. The trigeminal is considered the only sensory nerve of the face and the infant felt it when its face was irritated. Thus painful sensation seems to exist not only independent of the brain but even independent of any nerve center.

Death of Prof. G. Julliard

Dr. G. Julliard, former professor of clinical medicine at the Faculté de médecine of Geneva and formerly chief surgeon of the cantonal hospital of that city, has just died. He studied medicine in Paris from 1857 to 1865. Dr. Julliard took an important part in the organization of medical instruction which was inaugurated at the Université de Genève in 1876. He had the honor of installing open-air pavilions at the cantonal hospital which before the antiseptic period contributed to combat effectively the hospital gangrene which raged so cruelly in Geneva during the quartering of the French troops in 1871. He also carried on an earnest propaganda for the substitution of ether for chloroform in surgical anesthesia. Dr. Julliard was foreign correspondent of the Académie de médecine de Paris.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Aug. 25, 1911

Personal

Prof. A. Seligmüller, the neurologist of Halle, celebrated the semicentennial of his doctorate August 22.

The renowned Jena obstetrician and gynecologist, Prof. Bernhard Sigmund Schultze, celebrated the sixtieth year jubilee of his doctorate August 27.

The noted Bern surgeon, Professor Kocher, celebrated his seventieth birthday on August 25.

An Address of the Kaiser

On the occasion of his stay in Cassel, our Kaiser dedicated a new banner (in place of the one given by his father) at the gymnasium of that place, at which, as is well known, he received his schooling. In connection with it he delivered an address to the pupils of the highest classes, in which among other things he emphasized the importance of liberal studies. In the study of antiquity the emphasis should be placed not on the peculiarities of political life, which were entirely different from those of the present day, but on the harmony in art and philosophy which was peculiar to the Grecian people above all others and is especially lacking in our day; at the same time, study of the history of the fatherland should not be neglected. These statements are especially remarkable for the reason that they might suggest a retraction on the part of the Kaiser of the excessive estimate of physical science, which he gave in a speech a few years ago. At that time his words formed an introduction to the preference for scientific schools in Germany and further for the admission of graduates of these schools to the study of medicine and law. Probably now greater weight will be laid henceforth on the classical studies again and consequently the danger of the regular classic course becoming more and more neglected will be averted. In addition the Kaiser also in this address again emphasized the injuriousness of the misuse of alcohol, especially for college students. On this occasion he praised the custom of excluding the use of alcohol adopted by the college men in America; of whose ability we have often had occasion to be convinced, and he advised his audience to strengthen the body through sport, rather than to establish a record in the consumption of alcoholic drinks.

Shorter Hours in the Prussian Higher Institutions of Learning

The so-called short period of forty minutes already adopted in most of the Berlin higher institutions of learning is to be extended to all the similar institutions of Prussia according to a decision of the Prussian minister of education. In the edict the minister makes it the duty of the directors to exercise careful supervision, to see that no increase of work at home results from the shortening of the time of instruction in school, so that especially the free afternoons shall be devoted to physical recreation in the open air and to spontaneous intellectual work, if necessary by calling on the parents for aid. At the same time, the minister cautions that the pupil must not be under any compulsion to take part in the optional courses in the school.

Aid Bureau for Persons Discharged from Insane Asylums

Persons who have been discharged from an insane asylum and have now again to take up the battle of life as well as mentally abnormal people in general but who are not ill enough to need institutional care, have always caused great and often insurmountable difficulty to public charity. Already ten years ago the idea was advanced in Berlin of providing a special kind of care for this class of persons needing aid. Now a bureau for the care of discharged lunatics is being established on the basis of a program put forward by Privy Counsellor Moeli, chief of the Herzberg Asylum. The fundamental idea of this arrangement is that these persons need aid directed by a psychiatrist. There are four functions for the bureau: 1. Immediately after discharge, of which as far as possible the bureau must be previously notified, a suitable lodging must be provided, as far as possible in a family. Subsequently this lodging is to be permanently supervised. 2. Employment fitting the individual capacity and conditions of the patient is to be provided, and the bureau is to secure an appropriate place to work, in which the one receiving care shall be employed, at first necessarily at small wages and gradually providing for an improvement of the conditions of labor. 3. Also the conduct of the patient must be constantly superintended, and in the case of those previously addicted to alcohol, they are to be induced to join temperance societies, and injurious associations are to be prevented if necessary by removal to another environment. 4. To aid the ward in all business relations of daily life.

It has been determined to adopt a mixed form of care, similar to that which has already been adopted in the infant welfare stations. The station will be placed under the supervision of a salaried physician. The business management is to be looked after by a municipal official. The soul of the special care is a salaried nurse experienced in the treatment of those mentally afflicted. She will be aided by a number of unsalaried assistants.

Protest of Physicians at Königsberg Against Pollution of Water

In Königsberg the River Pregel which flows through the city has for many years given off a quite intolerable odor. This nuisance, of which much complaint has been made in the course of time, has not been removed, in spite of all the efforts of the city authorities. The odor has become even stronger in the last year. The water of the Pregel is of a dark color and with a west wind exhales a pestilential smell which extends far into the suburbs. Last Saturday the local physicians determined to present a remonstrance to all of the present authorities, declaring that it is held to be an elementary duty of all of the officials who have to do with the matter to leave nothing untried in order to remove this disgusting nuisance from the city. The president of the Königsberg medical association (*Aerzteverein*) was commissioned to forward a copy of this protest to the governor of the province, to the national legislature, the mayor and the city council.

The Movement of the Population in Germany in 1909

According to the official statistics just published, there were in the German empire in 1909, 494,127 marriages; this is 6,493 or 1.3 per cent. less than the previous year. Also the number of births has diminished. There were in 1909, 2,038,357 children born; in 1908, 2,076,660, so that the number of births has been reduced by 1.8 per cent. The number of deaths has fallen still more, as in 1909 there were 1,154,296 deaths as against 1,197,098 in the previous year, a reduction of 3.6 per cent. In spite of the considerable increase in the German population, the number of deaths is the smallest that has been recorded since the foundation of the empire. For every 1,000 inhabitants there were in 1909 15.48 marriages, 31.91 births and 18.07 deaths; in the previous year these figures were 15.88, 32.97 and 19.01. The natural increase of the German people or the excess of births over deaths, was 884,061, or 13.84 per thousand of the population. The age of those marrying was, among the men, under 25 in 30 per cent. of the cases and in 71.5 per cent. under 30 years, and among the women, in 58.2 per cent. under 25 years. Of the 2,038,357 births in the year 1909, 97.05 per cent. of the children were born living and 2.95 per cent. were still-born; 12.8 per 1,000 of the births were plural births;of these 25,893 were twins, 261 triplets and three quadruplets. In all 52,581 children were born in plural births. Of the 1,154,296 deaths in the year 1909, 60,079 were born dead and 335,436 were children under one year. For every 100 born there were seventeen deaths in the first year of life. This indicates a reduction of the infant mortality over that of the previous year, but it is still a very considerable figure in comparison with other civilized countries.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

PROGRESS OF PHARMACOPEIA REVISION

I. THE PHYSICIAN AND THE PHARMACOPEIA; GENERAL PRINCIPLES

The Executive Committee of Revision, after fifteen months of labor, has made public its first report[1]; this deals with a subject of decided interest to physicians, the scope of the Pharmacopeia.

In order to discuss the Pharmacopeia from any standpoint it is essential to keep clearly in mind what the Pharmacopeia is or purports to be. It is sometimes stated that the Pharmacopeia is now a "law book," but it is this only incidentally. As pointed out in recent court decisions, it was simply adopted as a legal standard for the articles which its owners care to include in it; there is therefore no reason for the latter to consider this aspect of the question further than it suits their purposes to do so.

The Pharmacopeia of the United States originated by physicians is now the exclusive property of the medical and pharmaceutical professions—professions which are assumed to be working together for the good of the sick and the protection of the well, and supposed to discountenance any practices incompatible with these aims, and to warn their clientele against practices or drugs which will be either harmful or useless. The specious argument that the public "calls" for worthless things and that it is legitimate to supply this want was long ago repudiated by the medical profession, if indeed it was ever recognized, as it also is by most pharmacists.

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[1] American Druggist, Aug. 28, 1911, p. 23.

These several considerations, if adopted, would naturally narrow the scope of the Pharmacopeia and find their logical expression in the "guiding principle" adopted by the present Committee of Revision, namely, that admission to, or retention in the Pharmacopeia should be determined by "therapeutic usefulness or pharmaceutical necessity."

It is by this guiding principle that the work of the Committee of Revision, as indicated by the present report on the scope, is to be judged. This brings us at once to the question as to how the committee has acquitted itself from the standpoint of the medical profession. We presume physicians have the right to ask this question, since the book was originated by physicians and because more than 60 per cent. of the organizations entitled to take part in the revision are medical organizations and by a further fact that slightly more than 50 per cent. of the organizations actually represented at the last Pharmacopeial Convention were medical organizations.

No committee of revision in recent years has had such excellent opportunities to learn the wishes of physicians as regards the scope of the Pharmacopeia as has the present one. The subject was under active discussion at medical meetings for several years before the Committee of Revision was selected. Various medical societies, including the American Medical Association and most of its sections, had special committees on the subject. Some of the societies arranged for a system of balloting by all their members. The Committee on the U. S. Pharmacopeia of the Association secured a vote on all the articles in the United States Pharmacopeia from the teachers of materia medica and therapeutics in the medical colleges of the United States. This material was carefully tabulated and printed and was freely accessible to the Committee of Revision. It may be said that there was an almost complete unanimity of opinion of the large number of physicians taking part in this work as to what the Pharmacopeia should be: it was that it should be a book which should reflect the best drug therapeutics of the United States and further that it should contain only remedies of recognized and established value so that the recognition of a drug by the Pharmacopeia would be, as it is generally taken to be, an assurance that the best medical thought at present holds it to be of established value. No other conclusion could possibly be drawn from this large amount of evidence; those who held any other view of the scope of the Pharmacopeia were in an extremely small minority.

Viewed from this standpoint the present report of the Committee of Revision is disappointing.

II. PROPOSED ADDITIONS AND DELETIONS

The proposed admissions[2] to the U. S. P. IX may be considered first, for it is by admissions that most physicians will judge the ability of the Pharmacopeia to adapt itself to the needs of modern medicine. To the extent that a pharmacopeia, for any reason whatever, is unable to include drugs which are in constant use by large numbers of well-informed practitioners, to that extent it can not expect to receive the cordial support of the profession. It is proposed to admit thirty-nine new drugs in the next revision. While it would be of interest to know by what process of inquiry the revision committee was led to think that there is a widespread, intelli-

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[2] The proposed omissions and additions are:

Articles to Be Dropped

Acetum Opii
Acidum Camphoricum
Acidum Sulphurosum
Alumini Sulphas
Argenti Nitras Mitigatus
Bismuthi Citras
Bismuthi et Ammonii Citras
Calamus
Cassia Fistula
Cataplasma Kaolini
Ceratum Camphoræ
Ceratum Plumbi Subacetatis
Cerii Oxalas
Chimaphila
Chirata
Cinnaldehydum
Colchici Cormus
Collodium Stypticum
Confectio Sennæ
Conium
Cusso
Cypripedium
Emplastrum Hydrargyri
Emplastrum Opii
Emplastrum Saponis
Emulsum Chloroformi
Emulsum Olei Morrhuæ cum Hypophosphitibus
Extractum Colchici Cormi
Extractum Digitalis
Extractum Hæmatoxyli
Extractum Krameriæ
Extractum Leptandræ
Extractum Malti
Extractum Scopolæ
Extractum Sumbul
Ferri Citras
Ferri et Ammonii Sulphas
Ferri et Ammonii Tratras
Ferri et Potassi Tartras
Ferri et Strychninæ Citras
Ferri Hydroxidum
Ferri Hypophosphis
Ficus
Fluidextractum Calami
Fluidextractum Calumbæ
Fluidextractum Chimaphilæ
Fluidextractum Chiratæ
Fluidextractum Conii
Fluidextractum Cubebæ
Fluidextractum Cypripedii
Fluidextractum Digitalis
Fluidextractum Euonymi
Fluidextractum Eupatorii
Fluidextractum Geranii
Fluidextractum Lappæ
Fluidextractum Leptandræ
Fluidextractum Lupulini
Fluidextractum Matico
Fluidextractum Meserei
Fluidextractum Pareitæ
Fluidextractum Phytolaccæ
Fluidextractum Quassiæ
Fluidextractum Quercus
Fluidextractum Quillajæ
Fluidextractum Rosæ
Fluidextractum Rubi
Fluidextractum Sabinæ
Fluidextractum Sanguinariæ
Fluidextractum Scopolæ
Fluidextractum Scutellaria
Fluidextractum Stillingiæ
Fluidextractum Stramonii
Fluidextractum Veratri
Geranium
Glyceritum Ferri, Quininæ et Strychninæ Phosphatum
Hamamelidis Cortex
Hedeoma
Hyoscyaminæ Sulphas
Infusum Pruni Virginianæ
Iodolum
Lappa
Lithii Benzoas
Lithii Salicylas
Mangani Sulphas
Mastiche
Matico
Mistura Ferri Composita
Mistura Rhei et Sodæ
Mucilago Ulmi
Naphthalenum
Oleatum Quininæ
Oleorsina Lupulini
Oleum Adipis
Oleum Aethereum
Oleum Chenopodii
Oleum Copaibæ
Oleum Erigerontis
Oleum Sabinæ
Pilulæ Aloes et Mastiches
Pilulæ Aloes et Myrrhæ
Pilulæ Laxativæ Compositæ
Pilulæ Opii
Pilulæ Podophylli, Belladonnæ et Capsici
Piperina
Plumbi Iodidum
Plumbi Nitras
Potassii Sulphas
Prunum
Pulvis Morphinæ Compositus
Quercus
Quillaja
Rubus
Sabina
Santonica
Scammonium
Scoparius
Scutellaria
Sodii Bisulphis
Sodii Nitras
Sodii Pyrophosphas
Spiritus Aetheris Compositus
Sulphuris Iodidum
Syrupus Ferri, Quinine et Strychninæ Phosphatum
Syrupus Hypophospaitum Compositus
Syrupus Krameriæ
Syrupus Rubi
Tamarindus
Tinctura Aloes et Myrrhæ
Tinctura Cardamomi
Tinctura Gallæ
Tinctura Ipecacuanhæ et Opii
Tincturæ Herbarum Recentium
Trochisci Gambir
Trochisci Glycyrrhizæ et Opii
Trochisci Krameriæ
Trochisci Santonini
Unguentum Gallæ
Unguentum Hydrargyri Oxidi Rubri
Unguentum Potassii Iodidi
Unguentum Veratrinæ
Unguentum Zinci Stearatis
Viburnum Opulus
Vinum Album
Vinum Cocæ
Vinum Colchici Seminis
Vinum Ergotæ
Vinum Ferri
Vinum Ferri Amarum
Vinum Ipecacuanhæ
Vinum Opii
Vinum Rubrum
Zea
Zinci Bromidum
Zinci Iodidum

New Articles to Be Admitted

Ammonium Bifluorid
Antitetanic Serum
Apiol
Aspidospermin
Bismuth Beta-Naphtol
Buchu (Long)
Caffein Sodio-Benzoate
Calcium Chlorid (Hydrated Crystals)
Calcium Glycerophosphate
Calcium Lactate
Carbonic Acid (Compressed)
Condurango
Creosote Carbonate
Crocus
Diacetyl-Morphin
Diacetyl-Morphin Hydrochlorid
Diastase
Emplastrum Cantharidis
Erythrol Tetranitrate
Fluorescein
Mercury Salicylate
Milk of Magnesia
Milk of Bismuth
Oxygen (Compressed)
Picric Acid
Phenolphthalein
Pine Needle Oil
Potassa Sulphurata
Quinin and Urea Hydrochlorid
Saccharin Sodium Salt
Sodium Cacodylate
Sodium Glycerophosphate
Sodium Perborate
Solution of Hydrogen Dioxid (30 per cent.)
Theobromin Sodio-Salicylate
Trioxymethylene
Uranium Nitrate
Vaccine Virus

gent demand for some of the preparations it is proposed to admit (aspidospermin, apiol, calcium glycerophosphate, for example) the failure to admit or make any reference to a number of specific recommendations of large and important bodies of physicians must cause surprise.

As has been pointed out, several sections of the American Medical Association, after long and careful study, made recommendations as to a number of admissions; surely no one would question that the members of these sections are well qualified to state what is needed by the practitioners of this country.

These recommendations have thus far received favorable consideration to but a very limited extent. With the exception of the report of the Section on Practice of Medicine (five of the six recommendations of which were accepted) there is nothing to indicate that these valuable reports were considered. Thus none of the recommendations of the Section on Obstetrics and Gynecology was adopted, but one of those of the Section on Ophthalmology, and four of those of the Section on Stomatology. It is true that some of the recommendations were not very definite, but they represent pharmaceutical problems encountered by physicians, problems which it would be natural to expect the Committee of Revision to solve. No doubt the latter could solve them if it was given the necessary means and assistance to carry on research work, especially if the former Committee of Revision had been at work on them in the long interval since the last revision.

Thus while the Committee of Revision should not be blamed, especially since most of the members serve with practically no direct remuneration, yet the important fact remains that when physicians meet pharmaceutical problems they are, apparently, unable to secure help from the logical source, namely, the Pharmacopeia. It is to be hoped that some of these problems are not mentioned in the present report because they are receiving further consideration.

It is proposed to delete 154 articles. With the thirty-nine additions this will still leave approximately 850 articles in the U. S. Pharmacopeia, a number which seems out of all proportion to the needs of modern medicine, especially when it is noted that about 20 per cent. of these are peculiar to the Pharmacopeia of the United States.

It is not likely that well informed physicians will miss many of the 154 articles it is proposed to delete, and it is a question if there is not an almost equal number retained which might have been deleted with as much or more justification; this was the opinion of a majority of the teachers of materia medica and therapeutics of the medical colleges who voted on this subject (and their collective wisdom is perhaps equal to the wisdom of the fifteen members of the Executive Committee of Revision with its one practicing physician).

As a matter of fact it is proposed to retain a number of peculiarly objectionable drugs. These include several plant drugs long since recognized as devoid of value or as having but a very secondary value, the main use of which is to deceive the people in one way or another, either as ingredients of "patent medicines" or of equally undesirable "ethical proprietaries."

The list includes such little used (by physicians) drugs as cinchonin, eupatorium, matricaria, rhus glabra, sabal, salvia, etc. Some of these are undoubtedly much "called for" by the laity, i. e., by the "patent-medicine" people; others are prominent in the names of certain "ethical proprietary" mixtures, and serve to overshadow the really important constituents; there is probably a large "sale" for them—but these are not tests of "therapeutic value." The vigor with which some of these drugs are repudiated by the medical profession is shown by the fact that they were recommended for deletion by the Section on Practice of Medicine, and by the majority of the teachers of materia medica and therapeutics and by certain medical societies; moreover they are comparatively little used on prescription.

It is also interesting to note that the Section on Obstetrics and Gynecology, the members of which are preeminently the best qualified to judge, voted to delete gossypii cortex and glyceritum hydrastis, which the Committee of Revision propose to retain, and that they voted to retain cerii oxalas, which it is proposed to delete; that the Section on Dermatology stated that the only plasters of value to dermatologists are the emplastrum plumbi and emplastrum hydrargyri; the revision committee proposes to delete the latter and to retain some used chiefly by the laity.

Previous revision committees have excused the shortcomings of the Pharmacopeia on the ground that so few physicians, and those not always representative, took an interest in the work; the present committee cannot make this excuse, for thoroughly representative bodies of active practitioners have supplied much more information than the committee seems to have been able to assimilate. Interests other than those of modern progressive medicine seem still to preponderate in pharmacopeial management.

While the report is disappointing in many ways, yet the encouraging feature is that the tide seems to have turned, and that the degeneration which Dr. Jacobi said was noticeable in recent revisions seems to have been checked, for a Pharmacopeia constructed on the lines which are foreshadowed by the first report of the Executive Committee of Revision is certainly a decided improvement over its immediate predecessor, and should encourage physicians to renewed activity and interest.

THE CHARGE AGAINST DR. WILEY

Extracts from the Testimony Given Before the Congressional Committee

(Continued from page 916)

THE INDIANA CASE

[A brief statement of the facts regarding what is known as the Indiana case appears editorially in this issue. It is there shown how the power of the federal government was used to assist Curtice Bros. and Williams Bros., in their attempt to have the pure food law of the state of Indiana declared unconstitutional. The matter that follows is taken from part of the testimony given before the Congressional Committee regarding the case. We first quote that part of the testimony of President Remsen, chairman of the referee board, that refers to the Indiana case.]

[President Remsen's Testimony]

Mr. Floyd. I want to ask you some other questions in connection with the benzoate of soda inquiry, and will ask that if you cannot give the information about the matter now, you will supply it to us later. I will ask you to state, if you know, whether or not Curtice Bros., of New York, and Williams Bros., of Detroit, Mich., are among the leading manufacturers of benzoate of soda in the United States?

Dr. Remsen. I do not know that I have ever heard that they were manufacturers of benzoate of soda.

Mr. French. You do not mean manufacturers of benzoate of soda?

Mr. Floyd. No, sir; I mean of the products in which benzoate of soda is used.

Dr. Remsen. All that I know about it is from signs that I have seen along the railroads.

Mr. Floyd. They use it, do they not? Are they not the principal users?

Dr. Remsen. I do not know.

Mr. Floyd. But you know it is used in the commodities you saw advertised by them?

Dr. Remsen. Yes, sir.

Mr. Floyd. They were products in which benzoate of soda is used, were they not?

Dr. Remsen. Yes, sir; in some of them it is used.

Mr. Floyd. I will ask you to state whether or not you were called on to give testimony against the State of Indiana in a suit against that state brought by Curtice Bros., of New York, and Williams Bros., of Detroit, Mich., in which case the pure-food law of the State of Indiana was involved, or, rather, a violation of it was involved.

Dr. Remsen. I would like to raise one question. I am not sure that the products of Williams Bros. and Curtice Bros. were involved, but there is a suit still pending, and I was called to give testimony in that suit.

Mr. Floyd. I will ask if you were called on to give testimony in a suit, in the State of Indiana, in which the enforcement of the pure-food law of the State of Indiana was involved?

Dr. Remsen. I was.

Mr. Floyd. Did you appear as a witness for or against the State in that suit?

Dr. Remsen. So far as my state of mind was concerned, I appeared for neither side. I simply wanted to state the facts as I knew them.

Mr. Floyd. At whose instance were you called?

Dr. Remsen. The first person who called on me was someone representing, I think, Curtice Bros. I told him I would not appear in the suit; that I did not care to get involved in it. He said that our report was involved in the suit; that our work was involved, and that it was due to the work which we had done to make certain statements, or to answer certain questions in regard to it. I then saw the Secretary of Agriculture, and asked whether he thought it was proper for me to give such testimony. He said that he thought it proper, and advised me to give it.

Mr. Floyd. Was that in relation to benzoate of soda or saccharin?

Dr. Remsen. Benzoate of soda.

Mr. Floyd. And your testimony was in relation to benzoate of soda?

Dr. Remsen. Yes, sir.

Mr. Floyd. And before going to give your testimony, you consulted with the Secretary of Agriculture, and he advised you that it was entirely proper for you to go and give the testimony?

Dr. Remsen. Yes, sir; because the report which we had given to the Secretary of Agriculture was at stake. We were told that they were going to attack this report, and that that would be in one sense the point of attack. They put it to us this way: That those who were responsible for the report ought at least to make some statement in regard to the character of it; that they could not put our report in as evidence, I believe, and they wanted testimony concerning the report, because the report itself could not be put in the record. That is all I know about it.

THE ATTITUDE OF THE SECRETARY OF AGRICULTURE

[The attitude of the Secretary of Agriculture in this case was made evident. From his standpoint, the government was pro-benzoate and, as such, must champion the cause of those manufacturers who use this chemical preservative.]

The Chairman. When you referred the matter to the Secretary of Agriculture for his advice as to whether you should testify or not, if he had advised you not to testify would you have given your testimony?

Dr. Remsen. Well, of course, that is a hypothetical question. I don't think we should.

The Chairman. You don't think you should?

Dr. Remsen. No. We were anxious not to appear in the suit at all.

The Chairman. When Dr. Chittenden asked your advice and you advised him to go, if you had advised him not to go do you believe he would have gone?

Dr. Remsen. That would depend on the pressure brought to bear on him from better and higher sources. Possibly the Secretary of Agriculture might have advised him to go even if I had advised him not to go. I think he would have followed the advice of the Secretary.

The Chairman. You spoke about having an aversion to giving testimony, but that the aversion was overcome. Now I want to know what force it was that led you to overcome that aversion?

Dr. Remsen. The whole force was a feeling on our part that perhaps we could aid those who were engaged in trying the suit to get at the real facts in the case.

The Chairman. Did you consider the question as to whether it would be proper, being a member of the referee board, on that account, for you to give testimony?

. . . .

Dr. Remsen. The way it lies in my mind now is the way it lay in my mind at that time, I am sure. I could not see any objection to giving a deposition in regard to the character of our work and the general relation we held toward the work which had been done. We had no feeling, as I say, no desire whatever to support anyone or to undermine anyone.

The Chairman. But you understood, however, that the defendant in this case was the State of Indiana?

Dr. Remsen. Yes; I did get that into my head after awhile. It took some time to do so, I must say.

The Chairman. And that it was the contention of the authorities of the State of Indiana and of the state chemist that the use of benzoate acid as a preservative for food was harmful to the public health?

Dr. Remsen. Yes; I understood that.

The Chairman. And you understood also that the judicial department of the State of Indiana was attempting to exclude from sale in our state any foods that used benzoate of soda as a preservative?

Dr. Remsen. I do not know anything about the machinery and did not know exactly where the matter stood; but I knew the suit had been brought. Exactly how it was brought or why it was brought I did not know then and do not know now.

The Chairman. And you knew, too, that if you gave testimony, your testimony would be favorable to the use of benzoate of soda as a preservative of foods?

Dr. Remsen. I suppose I knew that, although that did not enter into my thoughts. I am perfectly sincere in saying that all I wanted to do was to help these gentlemen as far as I could in arriving at the facts.

The Chairman. And the result would naturally follow, that whatever prestige you had gained by the fact of being a member of the referee board would naturally be against the contention of the State of Indiana in their enforcement of what they considered to be the pure-food laws of our state.

Dr. Remsen. I suppose that passed through my mind, although I did not spend any time worrying about it, because that was not what I was asked to think about.

The Chairman. Now, then, did that particular phase of it bring to your mind this particular question of propriety that you had in mind which caused you to refer this matter to the Secretary of Agriculture for his advice?

Dr. Remsen. I don't think that phase of it did; no. It was a general question as to whether the members of the referee board who had been called on by the United States Government—I think I can say that—to pass on certain scientific questions and had handed a report to the Secretary of Agriculture—it did occur to me that there might be some impropriety in a member of that board appearing in any capacity as a witness if he could help it. We cannot always help it.

The Chairman. And the Secretary advised you that there would be no impropriety in so appearing?

Dr. Remsen. Yes, sir.

The Chairman. And did he say it was your duty to do it?

Dr. Remsen. I don't think he put it as strong as that: but I got about that impression from what he said. The point was, as I remember it in our conversation, he said: "Gentlemen, you have made a report which you have signed; that is your statement. Now, that is called in question and if you are asked to answer questions in regard to it, it seems to me entirely proper that you should answer those questions." That was the way the matter was presented to me and it seems now a reasonable way—

Mr. Higgins. .Were you under summons from the court?

Dr. Remsen. No; I never was.

THE ATTEMPT TO DEPRIVE INDIANA OF DR. WILEY'S TESTIMONY

[Knowing that the Secretary of Agriculture was wedded to the pro-benzoate side of the question, Solicitor McCabe tried his best to prevent Dr. Wiley, whose views against the use of sodium benzoate are well known, from going to Indianapolis to testify.]

[*Solicitor McCabe's Testimony*]

Mr. Floyd. Now, I will ask you to state if you know anything about the case that was pending in the State of Indiana between Williams Bros., of Michigan, and Curtice Bros., of Rochester, N. Y., against the State of Indiana, wherein the pure-food law of Indiana was involved?

Mr. McCabe. Yes, sir.

Mr. Floyd. Now, I will ask you to state if any of the employees of the Agricultural Department attended that trial and gave testimony on either side.

Mr. McCabe. I do not know as to whether or not they attended the trial—that is, as to whether or not they went out before the master. But I know that employees of the Department of Agriculture gave testimony in the case.

Mr. Floyd. You do not know whether they attended or not, though?

Mr. McCabe. No, sir.

Mr. Floyd. And you do not know, if they did attend, how their expenses were paid?

Mr. McCabe. No, sir; I do not.

The Chairman. Were you requested to give an official opinion by the authorities of the State of Indiana as to whether Dr. Wiley might be permitted to give his testimony in that case?

Mr. McCabe. No, I don't think so, Mr. Moss. I was requested either by Dr. Wiley or Dr. Bigelow to give an opinion as to whether or not their testimony could be compelled—their testimony as experts could be compelled.

The Chairman. What advice did you give Dr. Wiley on that?

Mr. McCabe. I gave him the advice that he could not be compelled to testify as an expert in that case.

The Chairman. What effect did that have on securing or depriving the State of Indiana of Dr. Wiley's testimony?

Mr. McCabe. None.

The Chairman. Dr. Wiley gave testimony in that case, did he not?

Mr. McCabe. Yes, sir.

The Chairman. Will you state to the committee how it came about that Dr. Wiley testified?

Mr. McCabe. I was absent from Washington at the time. I was on my leave. My understanding of the matter is that Dr. Wiley refused to testify on the strength of my opinion and that application was made by the attorney general of the State of Indiana to Mr. Justice Barnard, of the local Supreme Court of the District, and that Justice Barnard signed an order requiring Dr. Wiley and the other men to testify on the facts.

The Chairman. The request, then, came to the Department of Agriculture from the attorney general of the State of Indiana that Dr. Wiley be permitted to testify, did it not?

Mr. McCabe. Yes.

The Chairman. And the effect of your decision was that he should not testify.

Mr. McCabe. No, sir.

The Chairman. What was the effect of your decision?

Mr. McCabe. The effect of my decision was that he could not be compelled to testify in that case as a witness. I will say, frankly, that I did not want Dr. Wiley to testify in that case.

The Chairman. Did you advise him not to testify?

Mr. McCabe. No, sir.

The Chairman. Did the Secretary of Agriculture advise him not to testify?

Mr. McCabe. Not to my knowledge.

The Chairman. But you did not want him to testify?

Mr. McCabe. No, sir.

The Chairman. Why did you not want him to testify?

Mr. McCabe. Because I did not want him to testify as an officer of the department in opposition to the ruling that had been made by the Secretary and by the three secretaries.

The Chairman. It appeared in the testimony of Dr. Remsen yesterday that the Secretary of Agriculture advised him to give his testimony.

Mr. McCabe. Yes, sir.

The Chairman. At the time that you gave this advice to Dr. Wiley, were you aware of the fact that Dr. Remsen had been requested by the Secretary of Agriculture to give his testimony?

Mr. McCabe. Yes, sir; I was.

[Solicitor McCabe, in advising Dr. Wiley as to whether he could be made to appear before the court at Indianapolis, submitted the following opinion:]

"Under the circumstances, therefore, I have to advise you that it rests in your discretion as to whether or not you will appear and testify in answer to a subpena, since, as stated, failure to do so cannot be regarded as contempt of court, nor be punishable as such. The same is true, of course, of any other employee who may be subpenaed.

Very respectfully,
GEORGE P. MCCABE, *Solicitor.*

[Further questioning brought out the following:]

The Chairman. You stated that you were aware that the Secretary of Agriculture had requested Dr. Remsen to appear?

Mr. McCabe. Yes, sir.

The Chairman. Were you aware at that time that the request for Dr. Remsen to appear had come from Curtice Bros.?

Mr. McCabe. No, sir. I knew it came from their attorneys.

The Chairman. You knew that the request had come from Curtice Bros. to Dr. Remsen?

Mr. McCabe. From Curtice Bros.' and Williams Bros.' attorneys.

The Chairman. And that the Secretary of Agriculture, knowing the fact that Curtice Bros. had requested it, had requested him to give his testimony?

Mr. McCabe. No; I do not think that is a fair statement of it. What I said is this; that I knew the attorneys for Curtice Bros. and Williams Bros. in this proceeding had asked for this testimony.

The Chairman. And the Secretary of Agriculture had requested him to give the testimony.

Mr. McCabe. I knew the Secretary of Agriculture had requested Dr. Remsen to testify.

The Chairman. But you do not know whether the Secretary knew at that time that Curtice Bros. had requested him to give it?

Mr. McCabe. No; I don't know that Curtice Bros. had.

The Chairman. You knew also that the Attorney General had requested Dr. Wiley to give the testimony?

McCabe. The attorney general of the State of Indiana?

The Chairman. Yes.

McCabe. Yes, sir.

DR. BARNARD THROWS LIGHT ON THE PROCEEDINGS

[But by far the most interesting and enlightening testimony in this case was that given by the State Food and Drug Commissioner of Indiana, Dr. Harry E. Barnard, who is also chemist to the Indiana State Board of Health. So clear-cut and illuminating is Dr. Barnard's testimony that we reprint practically all of it, omitting only such parts as are repetitions.]

[*Dr. Barnard's Testimony*]

Mr. Moss: What is your present official position?

Dr. Barnard: Chemist to the State Board of Health of the State of Indiana and state food and drug commissioner.

Mr. Moss: What official positions have you held by appointment in the scientific world?

Dr. Barnard: For several years state chemist of New Hampshire; prior to that time, for a year, I was connected with the Navy Department here in Washington.

Mr. Moss: What were your duties in the Navy Department?

Dr. Barnard: Assistant chemist in the government smokeless-powder factory at Indianhead.

Mr. Moss: Do the statutes of Indiana contain what is generally known as a pure-food law?

Dr. Barnard: They do.

Mr. Moss: State briefly the provisions regulating the use of preservatives in canned food.

Dr. Barnard: Section 2 of provision 7 provides:

> If it [a food] contains any added antiseptic or preservative substances except common table salt, saltpeter, cane sugar, vinegar, spices, or, in smoked food, the natural products of the smoking process, or other harmless preservatives whose use is authorized by the State Board of Health, it shall be deemed adulterated.

Mr. Moss: Do you recall the date when that was placed on the statute book?

Dr. Barnard: March 4, 1907.

Mr. Moss: Has there been, so far as you know, any attempt made in the Indiana Legislature to repeal this pure-food law?

Dr. Barnard: There never has been any attempt made to change it; no.

Mr. Moss: Has this statute been attacked by the press, or has it been approved by the press generally of the state?

Dr. Barnard: The pure-food law and all of its provisions have always been approved by the press of Indiana.

Mr. Moss: How many canning factories are there in the state of Indiana in active operation at the present time?

Dr. Barnard: About 120 canning factories, and in addition I suppose there are about fifty other factories which manufacture food products from raw materials, such as apple butter and products of that kind.

Mr. Moss: Did any of these factories conduct an interstate business?

Dr. Barnard: Nearly all of them do an interstate business.

Mr. Moss: Are any of those large concerns?

Dr. Barnard: Several are among the largest in the country.

* * * * * * *

Mr. Moss: Are goods canned in the State of Indiana conformable to the provisions of the state law as to preservatives permitted to be sold in other states of the Union?

Dr. Barnard: So far as I know, they are.

Mr. Moss: So far as you know, then, goods that pass the law of the State of Indiana as to purity will also pass the laws of any other state in the Union?

Dr. Barnard: So far as I know; yes.

Mr. Moss: What has been the effect of the state law in regard to pure food on the canning industry of the state, so far as stimulating or depressing the growth of that line of business?

Dr. Barnard: I believe the passing of our pure-food law has materially advanced the status of our canneries. They are in a much better position before the country to-day than they ever were before.

Mr. Moss: Is the output of those factories greater now than it was at the time of the passage of this law?

Dr. Barnard: Yes.

Mr. Moss: State the attitude of the packers in Indiana toward the pure-food law.

Dr. Barnard: All the canners of the state are in hearty sympathy with its provisions.

Mr. Moss: Do you state this fact within your own knowledge, having obtained it from conversations with leading packers of the state?

Dr. Barnard: Yes; I know that to be a fact.

Mr. Moss: Has any citizen of the State of Indiana filed suit to have this statute of the state declared invalid?

Dr. Barnard: No.

Mr. Moss: If such suit were to be filed, would the state or federal courts have jurisdiction?

Dr. Barnard: The state courts would have the jurisdiction.

Mr. Moss: As a matter of fact, has any suit been filed in any court to have the provisions of this law declared invalid?

Dr. Barnard: Yes. Such a suit has been filed.

Mr. Moss: By whom was it filed?

Dr. Barnard: Suit was filed on the 19th day of December, 1908, by two companies, the Williams Bros. Co., of Detroit, Mich., and the Curtice Bros. Co., of New York.

Mr. Moss: In what court was this suit filed?

Dr. Barnard: In the Circuit Court of the United States for the State of Indiana.

Mr. Moss: How came the Federal courts to have jurisdiction over a suit affecting a state law?

Dr. Barnard: I think it was because the complainants were foreign corporations.

Mr. Moss: Are either Curtice Bros. or Williams Bros., who appear as complainants in the case, citizens of Indiana?

Dr. Barnard: No; they are not.

Mr. Moss: Does either of the complainants own a canning factory in the State of Indiana?

Dr. Barnard: No; neither owns any.

Mr. Moss: Have you, as state chemist under the operations of our state law, seized goods which have been packed by either one of the complaining firms?

Dr. Barnard: Yes; we have collected a great many samples of goods manufactured by these two firms.

Mr. Moss: How were these goods labeled as to the use of preservatives?

Dr. Barnard: They were always labeled to indicate in certain classes of goods the existence of benzoate of soda to the extent of one-tenth or one-twelfth of 1 per cent.

Mr. Moss: Did you analyze any of these seizures?

Dr. Barnard: Yes; many samples.

Mr. Moss: Upon analysis in the state laboratory what proportion of benzoate of soda was found in those samples?

Dr. Barnard: Various quantities, but in almost every case from two to three times the amount declared on the label.

Mr. Moss: Then, according to your understanding of the regulations promulgated by the three secretaries as to goods which could be sent in interstate commerce, providing they were correctly labeled as to the proportion of benzoate, the goods that you analyzed would have violated those provisions?

Dr. Barnard: I take it they were all illegal.

Mr. Moss: If these firms were to pack their goods, using only such preservatives as are prescribed by our state law, would they have free sale in our state?

Dr. Barnard: Certainly.

. . . .

Mr. Moss: In what form was the suit brought against the state by Curtice Bros. and Williams Bros.?

Dr. Barnard: The plaintiffs came before the judge of the United States court of Indianapolis, asking for an injunction restraining the state food commissioner and the individual members of the State Board of Health from enforcing the pure-food law, and alleging that the pure-food law of the State of Indiana was unconstitutional and void for many reasons.

Mr. Moss: The legal grounds we will place in the record. What I want to develop is that it was for a temporary injunction restraining the state from enforcing the state law.

Dr. Barnard: Yes; that is right.

Mr. Moss: What was the ruling of Judge Anderson on this matter?

Dr. Barnard: He refused to grant the temporary injunction called for.

Mr. Moss: Did he also refuse to dismiss the petition?

Dr. Barnard: He refused to dismiss the petition of the state.

Mr. Moss: What legal procedure followed this ruling?

Dr. Barnard: Later the judge appointed a master in chancery to take testimony as to the facts involved in the petition of the complainants.

Mr. Moss: After this master was appointed did Williams Bros. and Curtice Bros. proceed to take depositions of various witnesses all over the United States?

Dr. Barnard: They did.

. . . .

Mr. Moss: In the taking of those depositions did Curtice Bros. and Williams Bros. take any testimony from any employees in the National Department of Agriculture?

Dr. Barnard: They did; yes, sir.

Mr. Moss: State to the best of your recollection how many employees of the Department of Agriculture gave testimony in this case for the firms of Curtice Bros. and Williams Bros.

Dr. Barnard: With the exception of two or three young men, subjects and clerks, any person who did any work in connection with the benzoate of soda investigation employed by the Department of Agriculture was examined. This included all members of the referee board, chemists, physicians, medical experts, clerks, stenographers, janitors—everyone who had anything to do with the case.

Mr. Moss: About how many in total?

Dr. Barnard: I cannot say exactly, but more than seventy-five.

Mr. Moss: Were Curtice Bros. and Williams Bros. compelled in any instance to apply to a court of justice to secure process to compel these employees, or any one of them, to appear and testify in court?

Dr. Barnard: Not that I know of.

Mr. Moss: Did the State of Indiana secure testimony from any of the employees of the National Department of Agriculture?

Dr. Barnard: Yes.

Mr. Moss: You may state who they were that you desired particularly to testify.

Dr. Barnard: We wished to secure the testimony of Dr. Wiley, chief of the Bureau of Chemistry, and those of his assistants who helped him in his benzoate of soda investigation.

Mr. Moss: Did any of the employees appear voluntarily to give their testimony on the request of the State of Indiana?

Dr. Barnard: No; we found it impossible to get their testimony.

Mr. Moss: Have you any reason to believe that these employees were personally adverse to the giving of such testimony?

Dr. Barnard: No; I think not.

Mr. Moss: Did any of these employees appear finally and testify, or give their depositions?

Dr. Barnard: Yes; after we went to the Supreme Court of the District of Columbia to compel them to testify.

Mr. Moss: When the State of Indiana applied to the courts in the District of Columbia for compulsory process to compel the employees of the Department of Agriculture to appear and testify, did counsel representing the Department of Agriculture appear in opposition?

Dr. Barnard: Yes.

Mr. Moss: In actual test, then, did you find the Department of Agriculture cooperating with the State of Indiana in the enforcement of the pure-food law or operating in opposition to the enforcement of the state laws?

Dr. Barnard: We found the Department of Agriculture opposing the State of Indiana in every move which we made to defend the pure-food law of our state.

Mr. Moss: Now, as to the results of the suit, if the prayer of the Curtice Bros. and Williams Bros. had been granted, what would have been the effect upon the pure-food law of the State of Indiana?

Dr. Barnard: We would have had no pure-food law.

Mr. Moss: It involved the constitutionality, did it?

Dr. Barnard: It did.

Mr. Moss: And its validity?

Dr. Barnard: Yes.

Mr. Moss: And if this suit of theirs had been successful, or if it finally is successful, it will have the effect of striking from the statute books of the State of Indiana our pure-food law, will it?

Dr. Barnard: That is true.

Mr. Higgins: Well, only one section of it, doctor.

Dr. Barnard: No; they allege that the entire law should go out because when the sections to which they object are stricken out the rest of the law would have no force or effect, they claim.

Mr. Higgins: Of course, that is a legal proposition, and, as I understand it, it is still pending in court.

Dr. Barnard: Yes.

. . . .

Mr. Floyd (acting chairman): Are there any other questions by any other members of the committee?

Mr. Moss: I have one or two more questions. Practically the whole case of the plaintiff in so far as the testimony is submitted was made by the United States employees of the Department of Agriculture, was it not?

Dr. Barnard: Very largely so.

Mr. Moss: Now in the whole course of this suit was there any contention on the part of Curtice Bros. or Williams Bros. that food containing benzoate of soda was superior to that which did not contain it?

Dr. Barnard: I think that one witness of the Curtice Bros. Co. made that claim.

Mr. Moss: Their main claim, is, however, that the addition of benzoate of soda is not deleterious.

Dr. Barnard: Yes; that is the contention.

Mr. Higgins: That was the real issue in the case, was it not, doctor?

Dr. Barnard: Not at all.

Mr. Higgins: That is, as to the use of benzoate of soda as a preservative?

Dr. Barnard: It finally developed that that was the reason for the bringing of the case. The real issue in the case was as to whether or not we should continue to enforce the pure food law of the State of Indiana.

Mr. Higgins: But it revolved around the use of benzoate of soda?

Dr. Barnard: Yes.

Mr. Floyd: In other words, the friends of benzoate of soda were willing to destroy the whole law in order to get their product in?

Dr. Barnard: That was it, exactly.

Mr. Moss: The law involved was purely a state law?

Dr. Barnard: Yes.

Mr. Moss: One that was satisfactory to the canning industry of the State of Indiana?

Dr. Barnard: Yes.

Mr. Moss: One under which the canning industry has been growing and developing?

Dr. Barnard: Yes.

Mr. Moss: What is the reputation of the canned goods of Indiana in the markets of the world?

Dr. Barnard: We believe they are superior to all others.

Mr. Higgins: We will concede that they are the best.

Mr. Moss: And this suit to break down this state law was brought by citizens outside the state?

Dr. Barnard: Yes.

Mr. Moss: And having no business investment in the state?

Dr. Barnard: That is correct.

Mr. Moss: And having no material interest in the law except to get the sale of their products, containing benzoate of soda, within the State of Indiana?

Dr. Barnard: That is correct, I think.

[Equally important and interesting was the testimony given by Attorney General Bingham of Indiana. The difficulties he encountered when he attempted to get information and help from the federal government that would aid him in his defense of the pure food law of his state are here plainly described:]

[*Judge Bingham's Testimony*]

Mr. Moss: Please state your full name.

Mr. Bingham: James Bingham.

Mr. Moss: What official position in your state have you held?

Mr. Bingham: Recently, attorney general of Indiana.

Mr. Moss: During what years were you attorney general?

Mr. Bingham: From January 1, 1906, to January 1, 1911.

Mr. Moss: As attorney general of the State of Indiana, you are familiar with the suit brought by Curtice Bros. and Williams Bros. against the State of Indiana in the case involving the pure-food law?

Mr. Bingham: Yes, sir.

Mr. Moss: You will state concisely to the committee just what is involved from a legal standpoint in that suit.

Mr. Bingham: The constitutionality of our pure-food law in Indiana as applied to the use of benzoate of soda as a preservative.

Mr. Moss: Did it involve the interpretation of any federal law?

Mr. Bingham: No.

. . . .

Mr. Moss: What will be the effect on the operation of the pure-food law if the decision of Judge Anderson sustains the prayer of the complainant?

Mr. Bingham: It will practically destroy it.

Mr. Moss: It will practically destroy the law?

Mr. Bingham: Yes, sir.

Mr. Moss: You are of course familiar with the politics of our state. Do you know of any attempt having been made in the Legislature of the State of Indiana to repeal this law since it went upon the statute books?

Mr. Bingham: No. I have never known of any, although I have not been in touch with what has been going on in the committee rooms or anything of that kind, but, on the other hand, I think the policy has been to strengthen the law, not to destroy it.

Mr. Moss: So far as you are acquainted with the press of the state, has it supported or has it been opposed to this law in its present form?

Mr. Bingham: Oh, I think it has always given a cordial support to the law.

Mr. Moss: So far as you are acquainted with the public sentiment of the State of Indiana and the citizenship, is it favorable to or opposed to the pure-food law?

Mr. Bingham: I think it is decidedly favorable.

Mr. Moss: And so far as you have an acquaintance with the canning industries and other industries affected by the operations of the law, what is their attitude toward it in our state?

Mr. Bingham: I understand that it is most favorable and satisfactory. I have, of course, not had personal contact with anybody except a few of them, but I have talked with canners and preservative men, and also the dealers, and they are favorable to the law and exceedingly anxious that the question be decided, so they may know what—

Mr. Moss (interposing): During your term as attorney general, which was four years immediately following the passage of this law, were you called upon to defend any suit brought by any citizen of the State of Indiana to have this law declared invalid?

Mr. Bingham: None whatever.

Mr. Higgins: Your answer is "no"?

Mr. Bingham: None whatever. No suit of that kind.

Mr. Moss: You were called upon, however, to defend a suit brought by citizens without the state, were you not?

Mr. Bingham: Yes, sir.

Mr. Moss: Now, judge, what was the relief which Williams Bros. and Curtice Bros. asked of the federal court?

Mr. Bingham: They sought to have a restraining order issued.

Mr. Moss: Will you state to the committee how it came that the federal court had jurisdiction over this purely state law?

Mr. Bingham: Because it involved a constitutional question—that is, taking property without due process of law, and because of the diverse citizenship of the parties.

Mr. Moss: What answer did Judge Anderson make to this prayer for a temporary restraining order?

Mr. Bingham: He declined to grant the temporary restraining order in most positive terms.

. . . .

Mr. Moss: Will you state again about how much territory you traveled in order to take the various depositions asked for by the plaintiff?

Mr. Bingham: Well, we began taking depositions at Seal Harbor, Me., on Mount Desert Island, and we wound up in San Francisco, Cal.

Mr. Moss: Who paid the expenses of yourself and those who went along in the matter of the taking of these depositions?

Mr. Bingham: The State of Indiana.

Mr. Moss: And it amounted to a considerable amount?

Mr. Bingham: Yes, sir. I don't know exactly how much it did amount to, but I think perhaps the money we spent in going to San Francisco to take Dr. Taylor's deposition may be recovered on proper motion, for the reason that when they took the deposition I was out there and cross-examined him, and they decided after that to bring Dr. Taylor to Indianapolis and not use his deposition taken out West, and I suggested then to the court that at the proper time we would ask to have that cost taxed to the complainants; and I think that should be recovered. Otherwise the money was all paid.

Mr. Moss: Were you aware at that time that the Department of Agriculture was paying the expenses of such members of the referee board and such other employees of the Department of Agriculture as came to Indianapolis and appeared there to testify?

Mr. Bingham: Well, at that time I think none of them had come to Indianapolis. We took depositions first. With perhaps one or two exceptions at least, we took these depositions, especially the far-away depositions, we took those first. I knew from the testimony of the witnesses, the members of the referee board, that they were being paid by the government.

Mr. Higgins: That appears in the testimony, does it not?

Mr. Bingham: It appears in the testimony, and it appears in a private conversation with Dr. Herter, of New York, in talking with him at his cottage at Mount Desert Island, Me. He told me that was true, and my recollection is that he afterwards so testified in the case.

Mr. Moss: When these members of the referee board appeared and gave their testimony, did they qualify as expert chemists or were they testifying in their capacity as members of the referee board?

Mr. Bingham: Oh, they testified as experts and testified as to the results of all their investigations as members of the referee board, and everything else that anybody asked them about.

Mr. Moss: You took quite a number of depositions in favor of the plaintiff in this case—that is, such depositions were taken?

Mr. Bingham: Yes; quite a number.

Mr. Moss: Were any of the depositions taken by Williams Bros. and Curtice Bros. taken from men who were employees of the Department of Agriculture or connected with the Department of Agriculture?

Mr. Bingham: If you say that the members of the referee board and their subjects and helpers, as I call them, were employees, I should say "yes." Now, as to whether or not any of the regular employees of the Department of Agriculture gave depositions, I am not quite sure about that.

Mr. Moss: But these were regular employees?

Mr. Bingham: They testified to having been paid for their services.

Mr. Moss: Within your knowledge, did the Curtice Bros. or Williams Bros. have to appeal to a court of law in order to secure compulsory process in order to have such person appear and testify?

Mr. Bingham: No; they did not have to. I do not know of any, and I am satisfied they did not have to do anything of that kind.

Mr. Moss: Do you know of their making any application for any employee of the Department of Agriculture to testify in behalf of the plaintiffs and that they were refused?

Mr. Bingham: I do not know.

Mr. Moss: You do not know of any such case?

Mr. Bingham: No.

Mr. Moss: On the part of the State of Indiana did you wish to secure the testimony of any employee in the Department of Agriculture?

Mr. Bingham: Yes, sir.

Mr. Moss: Will you state, judge, who it was, if you can recall that, whom you desired to secure the testimony of?

Mr. Bingham: We desired to secure the testimony of Dr. Harvey Wiley, the chief of the Bureau of Chemistry, and of the subjects that constituted the so-called poison squad that served when Dr. Wiley was making his benzoate of soda test, as I should call it, and also the helpers. That would be Dr. Bigelow and his chemist and several other chemists and clerks who helped to make up and tabulate the result of the investigation. I wanted to take all those depositions.

Mr. Moss: To whom did you make your first application for the testimony of those persons whom you wished to give evidence?

Mr. Bingham: Well, I really did not apply to the Agricultural Department first. I may say that I was under the impression that I would have some trouble about having Dr. Wiley come to Indianapolis. I was desirous, if I could, of having Dr. Wiley come in person to Indianapolis and testify before the master. I thought it would be better than to have his deposition. Well, I did apply first to Dr. Wiley. Dr. Wiley said to me that he would prefer that I confer with Secretary Wilson or the Department of Agriculture—I don't know which—with reference to procuring his attendance at Indianapolis, and Dr. Wiley was the first one; and I am not quite sure whether I personally did that or had Mr. Thompson, my assistant, do that. He came down to Washington and had a conference with Dr. Wiley in my absence and at my suggestion—I am not quite clear whether it was myself at first; I think perhaps I wrote Dr. Wiley first; I am not sure about it.

Mr. Moss: Then you did indicate a desire to have Dr. Wiley appear at Indianapolis to testify in the case?

Mr. Bingham: Yes.

Mr. Moss: And coupled with that request was there also a request that the Department of Agriculture should pay his expenses?

Mr. Bingham: Well, I do not think I made any request of that kind. I think I requested the attendance of Dr. Wiley and called attention to the fact that the members of the referee board had testified at the request of the Secretary of Agriculture.

Mr. Moss: What reply did you get from this request for Dr. Wiley's appearance at Indianapolis; was the request granted?

Mr. Bingham: No; the request was not granted.

Mr. Moss: Was it refused?

Mr. Bingham: It was put in this way: That the Agricultural Department had made a report which was contrary to that of Dr. Wiley, and that it might appear that the department would be put in the attitude of not sustaining the referee board or not being in sympathy with its decision—I do not remember the exact language—and suggested that we had better cause process to issue and take his deposition in the regular way.

Mr. Higgins: Do you think that was the suggestion of the Secretary?

Mr. Bingham: It was a letter signed by Secretary Wilson, I remember. That letter, however, was not addressed to me personally. I call attention to that.

. . . .

Mr. Moss: There were some papers, judge, that you desired to secure from the Bureau of Chemistry, were there not?

Mr. Bingham: Yes.

Mr. Moss: Please state whether or not you had any difficulty in securing those papers.

Mr. Bingham: In the matter of securing the papers I called at the department and everybody over there seemed to be kind enough and perfectly willing, providing it was satisfactory to the secretary and Solicitor McCabe, but were under the impression that it was not agreeable to give out the papers, and, as I remember, I prepared a written request as to what I wanted and what I did want was the report of Dr. Wiley on this test—the benzoate of soda test. I explained to those in charge of the department that the referee board's report had already been introduced, a certified copy given by complainants, and that what I wanted was the certified copy of the report by Dr. Wiley, and that I did not want any more than that, that the other was all in and would encumber the record. They took that under advisement, counseled somebody, some attorney was there, and after a considerable time I was given to understand that if the complainants consented that they would furnish the certified copy.

Mr. Moss: That is, if the Curtice Bros. and Williams Bros. were willing——

Mr. Bingham: They did not put it just that way.

Mr. Moss: That, in effect, was the meaning, was it not?

Mr. Bingham: Yes; that was. Then I wrote a rather impudent note—at least I tried to make it impudent; I do not know whether I succeeded or not—to the Agricultural Department, in which I said that the complainants had consented that the department might furnish this information; and then came along a very elaborate report, including—starting in with the beginning of all this benzoate of soda test of Dr. Wiley's, the old order that was to go into effect, and that was reversed, and then the report and the reversal of that order of Dr. Wiley, and then the referee board's report tacked onto it with gold seal and ribbons, and everything necessary to make it appear very formidable. There were about a thousand pages of that report of the referee board, and I objected very seriously to having that forced into the record when I was trying to get only the report of Dr. Wiley, and through the courtesy of counsel——

Mr. Higgins: You mean you objected to the master——

Mr. Bingham: Oh, I called up the department and telephoned to them and told them that what I wanted was a certified copy of this particular report, and they had my written request for it. They knew what I wanted. And then through the courtesy of the counsel for the complainants I finally introduced a copy of Dr. Wiley's report, not certified.

Mr. Moss: I will ask you if the State of Indiana was required to give consent before the report of the Remsen board or any official documents of that kind were introduced?

Mr. Bingham: None whatever.

Mr. Moss: But before you could get this report from the department the complainants had to join you in the request?

Mr. Bingham: Well, they sent over that sort of a statement to me. As I remember, it was on a card or something like that. I am not sure but what that memorandum is among the papers at Indianapolis. I don't remember exactly about it.

Mr. Moss: I will ask you if at any time during the taking of these depositions you received on behalf of the State of Indiana any encouragement or cooperation on behalf of any official of the Department of Agriculture?

Mr. Bingham: Voluntarily, no; but I may say this for Dr. Wiley: When I said to him that I wanted to take his deposition and question him about whether he would testify as an expert or not—I wanted his opinion of the result—he said that he would testify and that he would answer any questions that were put to him; that he would not hesitate to testify to anything that he was able to testify about.

Mr. Moss: He explained to you that he was not in a position to act voluntarily, did he not?

Mr. Bingham: He explained to me with reference to that particular thing that he did not propose to have any padlock put on his mouth. I do not know that I am giving his exact language, but that is practically what he said to me.

Mr. Moss: Now, judge, you did this hard work for the State of Indiana. Was your purpose the excluding of benzoate of soda from being sold in the State of Indiana, or was it to preserve the pure-food law of the State of Indiana?

Mr. Bingham: It was, of course, to preserve the pure-food law of the state.

Mr. Moss: You were making the fight to prevent the pure-food law of the State of Indiana from being stricken from the statute books?

Mr. Bingham: Yes; to keep it from being destroyed on account of its being declared unconstitutional.

Mr. Moss: And in making this fight to save the pure-food law of the State of Indiana did you receive any cordial cooperation on the part of the Department of Agriculture's officials, the heads of it?

Mr. Bingham: I received no cooperation. I have described that.

Mr. Moss: Yes; but I wanted to summarize it. Is there any other statement that you care to make in regard to this matter that you wish to go into the record? I will say to the committee that I did not have time to confer with the judge, and that is the reason I ask him to make any other statement that he wishes to make in order to make the record complete.

Mr. Bingham: Of course I do not know that I am in a position to volunteer anything. I would like to say this: That out in California Dr. Taylor testified fully and I cross-examined him fully, and they reported back that the stenographer had not been able to report the examination correctly; that counsel for complainant had been out there for thirty or sixty days, and much of the work Dr. Taylor testified about was conducted after the attorney got out to California and after the examination out there which they claimed the stenographer did not get an intelligent report of.

Dr. Taylor continued his investigations, and counsel for the complainant continued to remain in California, and when we came to the final hearing before the master at which Dr. Taylor testified in person, he testified to many of the things that he had developed after we had taken his deposition out there and several points which had been raised in my cross-examination when I was out there taking his deposition. Dr. Long, of Chicago, testified, as I remember, that he was not asked by the Secretary of Agriculture to appear and testify, but that he came at the instance of the complainant. I do not remember whether he said he paid his expenses or not. Dr. Remsen and Dr. Herter's depositions were taken at Dr. Herter's cottage at Mount Desert Island, Me.: Dr. Chittenden's deposition was taken at New Haven, and then he came on to Indianapolis afterwards and testified in person.

[Next week additional testimony will be published.]

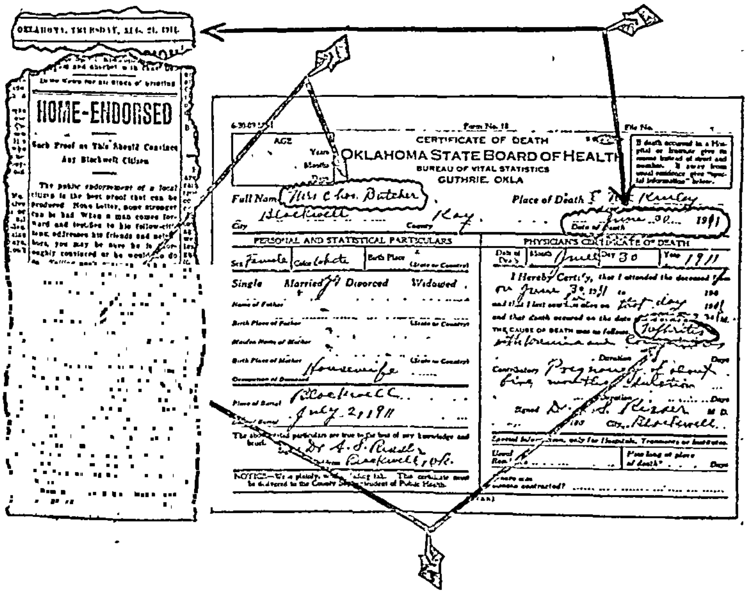
DOAN'S KIDNEY PILLS

A Testimonial that Proved a Boomerang

From a scientific standpoint—which merely means from a standpoint of actual facts—all "patent-medicine" testimonials are valueless. As a business asset of the "patent-medicine" maker, however, they are indispensable. Many nostrum manufacturers attempt to stimulate a local demand for their wares by publishing local testimonials, that is, testimonials from persons in the same locality as that in which the advertisements appear. From an advertising standpoint, there is but one objection to this: the very element that makes a local testimonial of value may, if great care be not taken, prove a boomerang. We present a case of this kind.

The Blackwell (Okla.) *News* for August 24, 1911, contained an advertisement in which a Mrs. Charles Butcher of that city testified to the virtues of Doan's Kidney Pills. As a matter of fact, Mrs. Charles Butcher had been dead nearly two months before the advertisement appeared; and she died of kidney disease!

From the standpoint of the advertiser, this episode merely means poor business management. From the standpoint of the public it means more. Doan's Kidney Pills are a fraud and a dangerous fraud. While they are advertised to "cure all kidney ills" the assertion is a false one. While they are said to be "a simple vegetable remedy," the analysis contradicts this. Here it is:



OKLAHOMA, THURSDAY, AUG. 24, 1911.

HOME-ENDORSED

Such Proof as This Should Convince Any Blackwell Citizen

The public endorsement of a local citizen is the best proof that can be produced. None better, none stronger can be had. When a man comes forward and testifies to his fellow-citizens, addresses his friends and neighbors, you may be sure he is thoroughly convinced or he would not do

CERTIFICATE OF DEATH

OKLAHOMA STATE BOARD OF HEALTH
BUREAU OF VITAL STATISTICS
GUTHRIE, OKLA

Full Name Mrs Chas. Butcher

City Blackwell County Kay

Date of Death June 30 1911

PERSONAL AND STATISTICAL PARTICULARS

Sex Female Color White

Occupation of Deceased Housewife

Place of Burial Blackwell

Date of Burial July 2, 1911

Dr A. S. Risser, Blackwell, Okl.

PHYSICIAN'S CERTIFICATE OF DEATH

Date of Death Month June Day 30 Year 1911

I Hereby Certify, that I attended the deceased

Signed Dr. A. S. Risser M.D.

City Blackwell

Photographic reproduction (greatly reduced) of a Doan's Kidney Pills advertisement that appeared in the Blackwell (Okla.) *News*, August 24, 1911, and a certified copy of the death certificate of Mrs. Charles Butcher, Blackwell, Okla. The advertisement contains a testimonial by Mrs. Charles Butcher, testifying to the value of Doan's Kidney Pills. The death certificate shows that Mrs. Butcher succumbed to kidney disease two months before her testimonial was published.

Oil of juniper	1 drop
Hemlock pitch	10 gr.
Potassium nitrate	5 gr.
Powdered fenugreek	17 gr.
Wheat flour	4 gr.
Corn starch	2 gr

In twenty pills.

Aside from the positive dangers of self-drugging with so-called kidney cures there is an even greater negative danger that people afflicted with kidney disease will neglect proper treatment until they have reached the incurable stage. The viciousness of the "patent medicine" business lies not so much in its assault on the public purse as in its insidious dangers to the public health.

Marriages

LEROY CALKINS PORTER, M.D., Bancroft, Ida., to Miss Maybelle Pearl Houtz of Salt Lake City, Utah, at Houtz Dell, Ida., August 30.

ARTHUR H. MANN, JR., M.D., Baltimore, to Miss Mary E. Elgin of Poolesville, Md., at Baltimore, August 26.

JOSIE HELEN DOBSON, M.D., Washington, D. C., and Dr. Rollin Henry Denniston of Madison, Wis., August 30.

HARRY A. RUTLEDGE, M.D., Baltimore, to Miss Natalie W. Paynter at Alexandria, Va., August 29.

ANDROS GULDE, M.D., Chelsea, Mich., to Miss Eunice N. Jackson of Toronto, Ont., August 10.

EDITH GRACE GRANT, M.D., Greenup, Ill., and Fritz William Graff of Marshall, Tex., August 23.

RALPH C. HAMILL, M.D., Chicago, to Miss Margaret Hunt of Winnetka, Ill., September 2.

LEO STEINER, M.D., to Miss Lilian Lederer, both of Chicago, August 29.

Deaths

George Alexander DeSantos Saxe, M.D., prominent as a genito-urinary surgeon, died at his home in New York City, September 10, from heart disease, aged 35. He was born and received his preliminary education in St. Petersburg, and graduated from the College of Physicians and Surgeons, New York City, in 1898. He was assistant pathologist to Columbus Hospital from 1901 to 1904, and since 1901 has been assistant to the chair of genito-urinary surgery in the New York Post-Graduate Medical School. His society membership includes the American Medical Association; the American Urological Association; the National Association for the Prevention of Tuberculosis; the American Society of Social and Moral Prophylaxis; and the New York Academy of Medicine. Shortly after his graduation he became connected with the *New York Medical Journal,* of which he was assistant editor up to the time of his death. He was also assistant editor of the *American Journal of Urinology* and an editorial writer for several other medical journals, author of a standard work on "Examination of the Urine" and joint editor "Blackboard Headings on Surgery."

William C. Phelps, M.D. University of Buffalo, N. Y., 1866; a member of the American Medical Association; professor of surgical anatomy in his alma mater and familiarly known as "Uncle Billy" for many years to the students of the University of Buffalo; in the early seventies surgeon of the police department; and in 1882 and 1883 health physician of Buffalo; consulting surgeon and president of the staff of the Erie County Hospital and surgeon to the Buffalo General Hospital; at one time surgeon of the Seventy-Fourth Infantry, N. G., N. Y., died at his home in Buffalo August 27, after a long illness following a fracture of the patella, aged 66.

Ernest J. Barnes (license, Ohio, 1896), a practitioner since 1879; a member of, and several times a delegate to, the Ohio State Medical Association; president of the Licking County Medical Society in 1905; formerly surgeon of the Wabash and Columbus, Hocking Valley and Toledo railways; surgeon to the Ohio Electric Railway Company; mayor of Granville, O., and formerly a member of the board of education and a member of the village council of Hebron; died at his home in Granville, August 23, from pernicious anemia, aged 54.

Jesse H. Smith, M.D. Rush Medical College, 1860; for sixteen years a practitioner of Cedar Rapids, Iowa, and since 1869 president of the Farmers' Insurance Company, Cedar Rapids; vice-president of the Cedar Rapids and Iowa City Railway and Light Company; thrice mayor of Cedar Rapids; for four years state senator from Linn County; president of St. Lukes' Hospital since its organization in 1877; died at his home in Cedar Rapids, August 29, aged 74.

George Scott Foster, M.D. University of Vermont, Burlington, 1873; a member of the Vermont State Medical Society; senator from Windham County in 1896; for thirteen years a member of the board of supervisors of the state insane; for fifteen years a member of the local pension examining board and for twelve years superintendent of schools, died at his home in Putney, August 18, from diabetes, aged 63.

Ernest Sargent Pillsbury, M.D. Cooper Medical College, San Francisco, 1897; formerly editor of the *Los Angeles Medical Journal;* secretary of the board of trustees of the College of Physicians and Surgeons, Los Angeles, and secretary of the Los Angeles Academy of Medicine; aged 43; was instantly killed September 3, when his automobile rolled down an embankment near Los Angeles.

T. Artemas Borton, M.D. Starling Medical College, Columbus, O., 1867; a member of the Indiana State Medical Association; a consulting physician to the Orphan's Home of Northern Indiana, Plymouth; for more than fifty years a practitioner of Marshall County; founder of the Plymouth Sanitarium; died at his home in Plymouth, August 25, from senile debility, aged 79.

George B. McGoogan, M.D. Fort Wayne (Ind.) Medical College, 1886; for many years in the government service, first in the weather bureau, later deputy collector of internal revenue and since that time in the diplomatic service; United States consul at Progreso, Mexico; died in a hospital in Mobile, Ala., August 29, from fever, aged 48.

William Blythe Lane, M.D. Bellevue Hospital Medical College, 1864; a member of the Medical Society of the State of New York; acting assistant surgeon United States Army in 1864 and 1865; a director of the Manhattan Life Insurance Company since 1872, and vice-president of the company from 1901 to 1910; died at his home in Brooklyn, August 27, aged 73.

John R. Mauk, M.D. Starling Medical College, Columbus, Ohio, 1869; a member of the Indiana State Medical Association; for twelve years a member of the Wayne County pension board and in 1880 a member of the state legislature; died at his home in Cambridge City, August 29, from carcinoma of the stomach, aged 79.

Henry Arnold, M.D. University of Vermont, Burlington, 1880; a member of the Rhode Island Medical Society; chairman of the executive committee of the Foster Old Home Day, was stricken with cerebral hemorrhage during this celebration, at Foster Center, August 24, and died four hours later, aged 56.

George Faulkner, M.D. Harvard Medical School, 1847; one of the oldest practitioners of Jamaica Plains, Boston; founder of the Faulkner Hospital, Jamaica Plains, which was opened in 1901; a member of the Massachusetts Medical Society; died at his home August 27 from senile debility, aged 92.

Henry Kay Kerr, M.D. Trinity Medical College, Toronto, Ont., 1881; University of Toronto, 1881; a member of the Medical Society of the State of New York; for more than twenty years a practitioner of Hammond; died at his home in Watertown, August 22, from cardiac asthma, aged 54.

John Knox, M.D. Medical College of the State of South Carolina, Charleston, 1878; for many years a practitioner of Mecklenburg County, N. C., and a member of the county medical society; died at his home in Pineville, August 21, from septicemia following a carbuncle of the neck, aged 61.

William H. Scott, M.D. McGill University, Montreal, 1894; a member of the Michigan State Medical Society; for several years a surgeon on transatlantic steamers and thereafter a practitioner of Kalamazoo; died in Borgess Hospital in that city, August 27, from heart disease, aged 41.

Theophilus Steele, M.D. Kentucky School of Medicine, 1865; of New York City; a confederate veteran and lieutenant-colonel on the staff of General Morgan during the Civil War; died at the home of his daughter in Bellmore, Long Island, August 23, aged 77.

Franklin P. Scott, M.D. University of Louisville, Ky., 1871; of Monongahela; for several terms president of the Washington County (Pa.) Medical Society; died in Washington, Pa., August 28, from carcinoma, aged 72.

Cornelius W. De Baun, M.D. Albany (N. Y.) Medical College, 1887; for six terms coroner of Montgomery County, N. Y.; died at his home in Fonda, N. Y., August 18, from cerebral hemorrhage, aged 46.

Guy Clifford Powell, M.D. Louisville (Ky.) Medical College, 1898; of Peoria; a specialist on diseases of the ear; died in Presbyterian Hospital, Chicago, August 25, from rheumatic endocarditis, aged 42.

Fred R. Stoner, M.D. University of Nashville, Tenn., 1896; of Decatur, Ill., died in that city August 18, from the effects of an accidental gunshot wound of the chest, aged 38.

William B. Hooser, M.D. Barnes Medical College, St. Louis, 1902; afterward a clergyman; died at his home in Meriden, Wyo., August 11, from cerebral hemorrhage, aged 35.

William Henry Belknap, M.D. University of Michigan Homeopathic College, Ann Arbor, 1900; College of Physicians and Surgeons, Chicago, 1902; a member of the American Medical Association; died at his home in Greenville, Mich., August 26, from disease of the heart and kidneys, aged 39.

James Douglas Baker, M.D. University of Michigan Homeopathic Medical College, Ann Arbor, 1878; chairman of the executive board of McMinnville, Ore., since 1893; died at his home in that place, Nov. 25, 1910, aged 62.

Charles F. Remme, M.D. Missouri Medical College, St. Louis, 1878; a member of the St. Louis Medical Society; died in his apartments in St. Louis, August 25, from cerebral hemorrhage, aged 62.

Leslie McClain, M.D. Medical College of Ohio, Cincinnati, 1875; a member of the Indiana State Medical Association; died at his home in Terre Haute, August 19, aged 62.

Gaston Gladu, M.D. Tulane University, New Orleans, 1893; of Bremond, Texas; was shot and instantly killed in that place August 19, as a result of a family quarrel.

George W. Dollison (license, Ohio, years of practice, 1896), one of the oldest practitioners of Hocking County, Ohio, died at his home in Logan, August 16, aged 82.

Fred Willard Lester, M.D. Rush Medical College, 1879; for several years a practitioner of David City, Neb., died at his home in Aurora, Ill., August 24, aged 57.

Horace L. Ash, M.D., University of Heidelberg, Germany, 1874; died at the home of his son in Lansing, Mich., January 7, from cerebral hemorrhage, aged 68.

Robert Gordon, M.D. McGill University, Montreal, 1868; for thirty-five years a practitioner of Arlington, Ill., died in Seattle, Wash., August 8, aged 69.

John Kruse, M.D. Berlin, Germany, 1864; for many years a resident of Bozeman, Mont.; died in the Deaconess Hospital in that city, August 18, aged 76.

Warren Wallace Merrill, M.D. Bennett Medical College, Chicago, 1880; died at his home in Rensselaer, Ind., August 29, from acute gastritis, aged 54.

Joseph W. Brinkerhoff, M.D. University of Wooster, Cleveland, Ohio, 1873, of Burbank, Ohio, died in Cleveland, August 16, from heart disease, aged 69.

James M. Bridges, M.D. a member of the Missouri State Medical Association and once its president; died at his home in Joplin, Dec. 31, 1910, aged 74.

William H. Burgesser, M.D. Missouri Medical College, St. Louis, 1876; died at his home in Joplin, Mo., August 23, from cerebral hemorrhage, aged 59.

Anton Posch, M.D. University of Innsbruck, Austria, 1881; died at his home in Round Top, Texas, August 21, from cerebral hemorrhage.

John P. Youmans (license, Ark., years of practice, 1881); a veteran of the Civil War; died at his home in Lewisville, June 8, aged 79.

Joel W. Nixon, M.D. University of Baltimore, Md., 1878; died at his home in St. Louis, August 25, from heart disease, aged 62.

H. Jefferson Foster, M.D. Eclectic Medical Institute, Cincinnati, 1882; died recently at his home in Cucamonga, Cal.

W. E. Jennings (registration, Texas, years of practice, 1907); died at his home in Burnet, August 29, aged 67.

Thomas J. Jones, M.D. Drake University, Des Moines, 1887; died at his home in Des Moines, August 20, aged 57.

Correspondence

Iodin in Sterilization of the Skin

To the Editor:—In view of the fact that in numerous articles which have been recently published on the subject of iodin sterilization of the skin, mention is made of the paper of Grossich, published in the *Zentralblatt für Chirurgie* (October, 1908) [summarized in THE JOURNAL, Dec. 5, 1908, p. 2012], as being the first recorded use of iodin for that purpose, I wish to say that I used iodin for this purpose in 1905 and published a description of my method in THE JOURNAL, "Some of the Uses of Iodin in Surgical Practice," April 14, 1906, p. 1102. My method was described in a paper prepared for the February, 1906, meeting of the Tri-State Society of Virginia and the Carolinas, which was published in *American Medicine*, November, 1906. The method was again described in a paper prepared for the Hot Springs meeting of the Mississippi Valley Medical Association, Nov. 8, 1906, and published in the *Therapeutic Gazette*, May 15, 1907.

JOHN E. CANNADAY, Charleston-Kanawha, W. Va.

Anesthetization of Sleeping Persons

To the Editor:—In THE JOURNAL, July 29, page 428, is a report that chloroform was given to two sleeping children without awakening them. During the winter of 1910 I administered chloroform to a child of about two years of age, while she slept, without her making any show of awakening.

ERWIN C. CARY, M.D., Welcome, Wis.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CARE OF THE HYPODERMIC NEEDLE

To the Editor:—I use to my entire satisfaction a simple and effective method of caring for the hypodermic outfit as follows: After the needle has been used, it is removed, the barrel is drawn full of 95 per cent. alcohol: the needle is replaced and the alcohol expelled. The plunger is then forced in and out half a dozen times or more and the instrument placed in its case. This procedure is repeated before using. It is a pleasure to find the needle in perfect condition when one wishes to use it. I might add that I have discarded the exasperating wires that are usually found in most hypodermic cases; I depend solely on thorough sterilization with alcohol and find the process satisfactory, saving both time and patience. The outside of the needle and barrel is cleansed with alcohol on absorbent cotton or gauze.

J. C. JENKINS, Lititz, Pa.

ANSWER.—It may be fair to question whether or not our correspondent will secure a clean needle by this method. We understand that this procedure is primarily aimed at perfect cleansing of the needle to avoid rust and clogging. For this purpose pure alcohol is the best, but for sterilization, a partly diluted alcohol may be better. This question was brought up in THE JOURNAL, June 10, 1911, page 1741, and June 24, page 1900. It was stated that full strength alcohol is not as effective a germicide as 70 per cent., and that even 70 per cent. requires ten minutes to kill the staphylococcus. It will be noted that Dr. Jenkins does not specify that he holds the alcohol in the needle for any certain length of time. Is it not better and safer to place the needle in a few tablespoonfuls of water and boil for three minutes to insure absolute asepsis, as well as to secure sterile water?

DIAGNOSIS OF INFLUENZA

To the Editor:—Your editorial on the frequency of mistakes in diagnosis of influenza leads me to ask for the full technic for finding the germ; also such description of the germ as will enable one to identify it when found. Does it have to be grown, or may it be demonstrated in the discharges from the patient? Would it help in its identification if you were to give a photograph of its appearance? Is it necessary before making a diagnosis of influenza to demonstrate the presence of the germ?

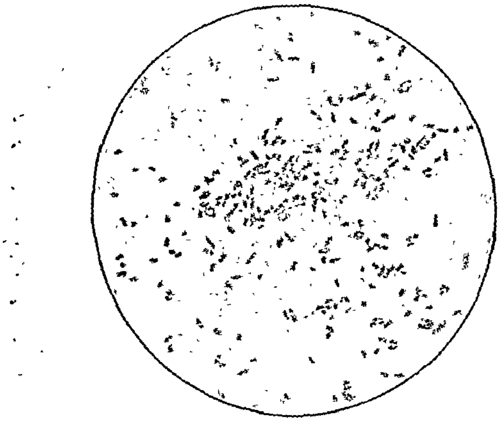
T., Toledo.

ANSWER.—The technic for finding influenza bacilli in various discharges consists in the direct examination of smear preparations and in the cultivation of the organism on suitable culture media. The smear preparations are made by spreading a loopful or a drop of the material to be examined (sputum, pus, cerebrospinal fluid, etc.) on a glass slide or a cover-glass, and allowing it to dry and become fixed in the flame. A very satisfactory and simple stain is fresh dilute carbol-fuchsin made by diluting ordinary carbol-fuchsin (such as is used for staining tubercle bacilli) twenty-five or thirty times with distilled water. This is applied for from two to three minutes, the slide is washed with water, dried and mounted in balsam. When other organisms are present in the material, as is almost always the case with sputum, it is desirable to stain first with Gram's stain and then use dilute carbol-fuchsin as a counter stain. By this method, the Gram-positive organisms such as pneumococci and streptococci are stained dark purple or nearly black and the influenza bacilli, which are Gram-negative, stain light red. The influenza bacillus is very minute, being one of the smallest organisms known. It is about three times as long as it is broad and the ends usually stain deeper than the center. It may be seen inside the polynuclear leukocytes, especially late in the course of the infection. There is no characteristic arrangement of the organisms outside the leukocytes though they are often observed in loose clusters.

The influenza bacillus requires for growth the presence of hemoglobin in the culture medium. A minute quantity is sufficient. As the bacillus usually occurs in sputum, in which practically always other organisms are present, the plate method is used for isolation. In this method, tubes of melted agar, to which a few drops of sterile defibrinated blood have been added, are inoculated with the material, and poured plates are made and incubated. The influenza colonies, should they be present, are visible in twenty-four hours as small, round, non-hemolytic, "dewdrop-like" colonies and are distinctly larger and more numerous around colonies of other organisms such as pneumococci, streptococci, etc. This latter phenomenon, known as symbiosis, is very striking and constant and is characteristic of this organism. The colonies may then be transferred to blood-agar slants and thus pure cultures obtained and further studied.

From the examination of smear preparations alone, one can only be suspicious of the presence of the germ. Cultivation and isolation of the organism should be made for positive identification.

The term "influenza" should be reserved for those conditions caused by infection with the influenza bacillus. There occur not infrequently diseases, especially of the upper respiratory tract, both in sporadic and epidemic forms, which clinically cannot be differentiated from influenza but which are caused by other germs, such as streptococci and pneumococci. For this reason the diagnosis of influenza should not be made without a bacteriologic examination.



The bacillus of influenza

The illustration herewith given is not very satisfactory, as this department is not printed on the calendered paper necessary to bring out the details; for better views the reader is referred to text-books which take up the subject.

The Public Service

Medical Department, U. S. Army

Changes during the week ended Sept. 9, 1911.

Winn, Robert N., major, granted one month and twenty-one days' leave of absence.

Koyle, Fred T., M.R.C., ordered to duty as surgeon of the transport *Kilpatrick*.

Ford, Joseph H., major, ordered to San Antonio, Texas, for duty with the 10th Infantry.

Jones, George B., M.R.C., assigned to duty with the 10th Infantry, San Antonio, Texas.

McAlister, John A., Jr., dental surgeon, reported at Jefferson Barracks, Mo., for duty on examining board.

Ingalls, R. E., dental surgeon, returned to Ft. Douglas, Utah, from detached duty.

Stone, Frank P., dental surgeon, left Presidio of Monterey, Cal., for station at Fort Barrancas, Fla.

Lowe, Thomas S., M.R.C., left Presidio of Monterey, Cal., on three months' leave of absence.

Gunckel, George I., dental surgeon, returned to temporary duty at Fort McPherson, Ga., from leave of absence.

The following changes in the stations of officers of the medical corps and of the medical reserve corps are ordered:

The following named officers will proceed to San Francisco on the transport to sail from Manila, P. I., on or about Jan. 15, 1912, and on arrival report by telegraph to the Adjutant General of the Army for further orders: Major Albert E. Truby, Medical Corps; Capt. Philip W. Huntington, Medical Corps; First Lieut. George H. McLellan, Medical Corps; First Lieut. Arnin Mueller, Medical Corps; First Lieut. Clarence E. Fronk, Medical Corps; First Lieut. Percy G. Drake, Medical Reserve Corps; First Lieut. Ziba L. Henry, Medical Reserve Corps; First Lieut. Herbert L. Freeland, Medical Reserve Corps; First Lieut. Maurice Buchsbaum, Medical Reserve Corps.

The following named officers will proceed to San Francisco on the transport to sail from Manila, P. I., on or about Feb. 15, 1912, and on arrival report by telegraph to the Adjutant General of the Army for further orders: First Lieut. William R. Dear, Medical Corps; First Lieut. Clarence A. Treuholt, Medical Corps; First Lieut. Frederick S. Wright, Medical Corps; First Lieut. Lee R. Dunbar, Medical Corps; First Lieut. Addison D. Davis, Medical Corps; First Lieut. Elsworth Wilson, Medical Reserve Corps; First Lieut. William M. Archer, Jr., Medical Reserve Corps; First Lieut. Henry F. Philips, Medical Reserve Corps; First Lieut. Robert Lemmon, Medical Reserve Corps, First Lieut. Oswald F. Henning, Medical Reserve Corps.

The following named officers will proceed to Manila, P. I., on the transport sailing from San Francisco on or about Jan. 5, 1912, and on arrival will report in person to [illegible] al, Philippines Division, for assignment to [illegible] Freeman, Medical Corps; First Lieut. Thomas [illegible] rps; First Lieut. Edward L. Napier, Medical [illegible] Thomas H. Johnson, Medical Corps; First Lie [illegible] Jr., Medical Corps; First Lieut. William B. Borden, Medical Reserve Corps; First Lieut. Albion McD. Coffey, Medical Reserve Corps; First Lieut. Wilson Murray, Medical Reserve Corps; First Lieut. George R. Clayton, Medical Reserve Corps; First Lieut. Ralph W. Newton, Medical Reserve Corps.

The following named officers will proceed to Manila, P. I., on the transport sailing from San Francisco on or about Feb. 5, 1912, and on arrival will report in person to the commanding general, Philippines Division, for assignment to duty: Captain Frank W. Weed, Medical Corps; First Lieut. Alexander T. Cooper, Medical Corps; First Lieut. Condon C. McCormack, Medical Corps; First Lieut. Madison H. Bowman, Medical Reserve Corps.

McAfee, Larry B., first lieut., is relieved from duty at the Army and Navy General Hospital, Hot Springs, Ark., to take effect at such time as will enable him to comply with this order, and will proceed at the proper time to San Francisco, and take the transport to sail from that place on or about Feb. 5, 1912, for Hawaii Territory, and on arrival at Honolulu will report in person to the commanding officer, Fort Shafter, for duty and by letter to the commanding general, Western Division.

The following named officers of the Medical Reserve Corps, recently appointed, are ordered to active duty in the service of the United States, on account of an existing emergency, to take effect Sept. 20, 1911, and will repair to this city at the proper time and report in person on Oct. 2, 1911, to Colonel Louis A. LaGarde, Medical Corps, president of the Army Medical School, to take a course of instruction at that school: First. Lieteunants Leo B. Allen, Morris H. Boerner, William G. Gill, Chester R. Haig, Robert M. Hardaway, Thomas E. Harwood, Jr., Howard L. Hull, George H. Hungerford, Charles P. Kennedy, Harry R. McKellar, Alvin C. Miller, Henry C. Osborn, Omar H. Quade, Charles M. Walson, William F. Wild, Neal N. Wood.

Each of the following named officers of the Medical Reserve Corps is relieved from duty at the station designated after his name, to take effect at such time as will enable him to comply with this order, and repair to this city at the proper time and report in person on Oct. 2, 1911, to Colonel Louis A. LaGarde, Medical Corps, President of the Army Medical School, to take a course of instruction at that school: First Lieutenants Harry H. Blodgett, Fort Riley, Kan.; Thomas W. Burnett, Fort Slocum, N. Y.; Philip B. Connolly, Fort Monroe, Va.; John G. Ingold, Fort Wayne, Mich.; Frederick C. A. Kellam, Jr., Walter Reed General Hospital, District of Columbia; Kermin W. Kinard, Ft. Ethan Allen, Vt.; Douglas W. McEnery, San Antonio, Tex.; Shelley U. Marietta, Ft. Sheridan, Ill.; John W. Meehan, Ft. Howard, Md.; Leopold Mitchell, Washing [illegible] ther R. Poust, Ft. Du Pont, Del.; Guy L. [illegible] s, Me.; William P. J. Ruddy, Ft. Myer, Va. [illegible] Moultrie, S. C.; John W. Sherwood, Ft. Wi [illegible] on, Ft. Adams, R. I.; John H. Trinder, Ft. [illegible] Turnbull, San Antonio, Tex.; Alfred P. Ups [illegible]

[illegible] relieved from duty at Fort Sam Houston [illegible] such time as will enable him to comply with orders to the Philippines Division.

McMurdo, Hew B., M.R.C., recently appointed, is ordered to active duty Sept. 20, 1911, and ordered to Army Medical School, this city, October 9, for course of instruction.

Hess, Louis T., major, granted two months' sick leave of absence.

Hutton, Paul C., major, ordered to proceed to Fort Snelling, Minn., for temporary duty when his services are no longer required at San Antonio, Tex., and then to take station at Fort Howard, Md., as heretofore ordered.

McAfee, Larry B., lieut., relieved from duty at Army General Hospital, Hot Springs, Ark., and ordered to Fort Shafter, H. T., for duty.

Medical Corps, U. S. Navy

Changes during the week ended Sept. 9, 1911.

Ransdell, R. C., P. A. surgeon, detached from the *Baltimore* and ordered to the *Utah*.

Brown, H. L., P. A. surgeon, ordered to the *Baltimore*.

Cecil, A. B., asst.-surg., detached from the naval station, Guantanamo, Cuba, and ordered to the *Marietta*.

Irvine, W. L., asst.-surg., detached from the *Marietta* and ordered to the naval station, Guantanamo, Cuba.

Sanborn, C. F., A. A. surgeon, resignation accepted to take effect from Sept. 5, 1911.

Sutton, D. G., P. A. surgeon, detached from the *Indiana* and ordered to duty at the naval hospital, Annapolis, Md.

Wells, H., medical director, placed on the retired list from Sept 17, 1911.

McDonell, W. N., P. A. surgeon, detached from the *Massachusetts* and ordered to the Kansas.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POSTGRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

[NOTE.—The pamphlets containing the outline of the postgraduate study course for county societies for the coming year are ready for distribution. Secretaries of county societies can secure supplies by writing to the Secretary, Council on Health and Public Instruction, American Medical Association, 535 Dearborn Ave., Chicago.]

First Month—Second Weekly Meeting

CLASSIFICATION OF TUMORS: Work of Hamilton, Ribbert, Borst, Bland-Sutton, Lubarsch. Embryogenetic classification of Adami; Lepidic or "rind" tumors, and hylic or "pulp" tumors. Clinical classification.

FIBROMA: Gross and microscopic appearance, distribution.

LIPOMA: Size, number, distribution, varieties, gross and microscopic appearances.

CHONDROMA: Varieties, distribution, gross and microscopic appearances.

OSTEOMA: Varieties, number, gross and microscopic appearances. Odontomes.

MYOMA: Distribution, mixed tumors, gross and microscopic appearances.

MYXOMA: Gross and microscopic appearances. Secondary changes.

NEUROMA: Pathology, number, distribution.

Ganglionic neuroma. Neurofibromatosis. Molluscum fibrosum.

GLIOMA: Microscopic changes.

REFERENCE BOOKS FOR THE FIRST MONTH

Bland-Sutton: Tumors. Levings: Tumors.
Cathcart: Tumors. Adami: Pathology, vol. i.
Text-Books on Pathology and Surgery.
For a review of the literature on tumors consult the December numbers of *Progressive Medicine*.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

COLORADO: The State Capitol, Denver, October 3. Sec., Dr. David A. Strickler, 612 Empire Building.

GEORGIA: October 10. Sec., Dr. R. E. Hinman, 106½

IDAHO: W , Dr. O. J. Allen, Bellevue.

ILLINOIS: C October 26-28. Sec., Dr. J. A. Egan, Springfield.

IOWA: Capitol Building, Des Moines, September 19-21. Sec., Dr. Guilford H. Sumner.

LOUISIANA: New Orleans, October 19-21. Sec., Dr. A. B. Brown, 108 Baronne Street.

MICHIGAN: Legislative Bldg., Lansing, October 10-12. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: State University, Minneapolis, October 3. Sec., Dr. W. S. Fullerton, St. Paul.

MISSOURI: Kansas City, September 25-27. Sec., Dr. Frank B. Hiller, Jefferson City.

MONTANA: The Capitol, Helena, October 3. Sec., Dr. W. C. Riddell.

NEW JERSEY: The State Capitol, Trenton, October 17-18. Sec., Dr. H. G. Norton, 429 E. State Street.

NEW MEXICO: The Capitol, Santa Fe, October 9-10. Sec., Dr. J. A. Massie.

NEW YORK: September 26-29. Mr. Harlan H. Horner, Chief of Examinations Division, Department of Education, Albany.

OKLAHOMA: Muskogee, October 10. Sec., Dr. John W. Duke, Guthrie.

RHODE ISLAND: Room 315 State House, Providence, October 5-6. Sec., Dr. Gardner T. Swarts.

UTAH: Salt Lake City, October 2-3. Sec., Dr. G. F. Harding, 310 Templeton Building.

WYOMING: Riverton, October 9-11. Sec., Dr. A. B. Tonkin.

Alabama July Report

Dr. W. H. Sanders, chairman of the Alabama State Board of Medical Examiners, reports the written examination held at Montgomery, July 11-14, 1911. The number of subjects examined in was 10; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 127, of whom 89 passed and 38 failed, including 1 osteopath. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Alabama, (1910) 75, 75, 75, 76, 79, 79; (1911) 75, 76, 76, 76, 77, 77, 77, 78, 78, 80, 81, 81, 81, 82, 83, 83, 83, 83, 83, 84, 84, 84, 84, 85, 85, 85, 86, 87, 89.4, 90.		
Birmingham Medical College, *(1909) 75; (1910) 75; (1911) 75, 76,* 76, 76, 79, 79, 79, 79, 80, 81, 81, 82, 82, 82, 84, 87.		
Georgetown University	(1911)	87
Atlanta College of Physicians and Surgeons	(1911)	77
Atlanta School of Medicine	(1911)	79, 81
American Medical Missionary College	(1910)	82
University of Louisville	(1911)	76
Tulane University of Louisiana, (1893) 75; (1909) 77; (1911) 76, 78, 79, 81, 82, 82, 82, 83, 85, 86.		
Johns Hopkins University	(1909) 75; (1911)	78, 82
University of Tennessee	(1911)	75, 76, 78
University of Nashville	(1911)	75, 78
Meharry Medical College	(1911)	75
Vanderbilt University	(1908) 77; (1911)	75, 76, 79, 79, 82
University of Virginia	(1911)	81, 89

FAILED

College	Year Grad.	Per Cent.
University of Alabama, (1910) 69.2; (1911) 59.5, 69.6, 70.5, 73, 73.2.		
Birmingham Medical College, (1910) 57.5, 72.9; (1911) 66.4, 69.1, 69.2, 69.7, 73.		
Atlanta College of Physicians and Surgeons, (1910) 73;	(1911)	69.9
Atlanta School of Medicine	(1911)	56.2
Medical College of Georgia	(1911)	52.6
Tulane University of Louisiana, (1910) 59.3; (1911) 67.5, 67.5, 72,4, 73.8.		
Barnes Medical College	(1910)	71.7
Leonard Medical School	(1911)	66.3
Meharry Medical College	(1911)	72.6
Memphis Hospital Medical College, (1910) 57.3, 58.6; (1911) 50.6, 55.7, 57.5.		
University of Tennessee	(1908)	68.8
College of Physicians and Surgeons, Memphis	(1908)	62.9
University of the South	(1907)	59.8
University of Nashville	(1911)	66
Vanderbilt University	(1911)	66.6, 70.5
Chattanooga Medical College	(1908)	64.7

Iowa February and June Reports

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examinations held at Des Moines, Feb. 14-16, and June 5-7, 1911, and at Iowa City, June 8-10, 1911. The number of subjects examined in was 8; total number of questions asked, 100; percentage required to pass, 75.

At the examination held February 14-16, the total number of candidates examined was 8, of whom 6 passed and 2 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Chicago	(1910)	93.1
State University of Iowa, College of Medicine	(1906)	85
Medical School of Maine	(1892)	83
Ensworth Medical College	(1910)	75.5
Hahnemann Medical Coll. and Hosp., Philadelphia	(1909)	88
McGill University, Montreal, Quebec	(1901)	93.4

FAILED

College	Year Grad.	Per Cent.
Keokuk Medical College, Coll. of Phys. and Surgs.	(1904)	70.1
Victoria University, Toronto, Ontario	(1890)	65.7

At the examination held at Des Moines, June 5-7, the total number of candidates examined was thirty-four, of whom thirty-one passed and three failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Denver and Gross College of Medicine	(1910)	90
Northwestern University Medical School, (1904) 90.4; (1911) 84.6, 89, 90.9, 93.		
Hahnemann Medical College and Hospital, Chicago	(1911)	83.9, 86.4
College of Medicine University of Illinois	*(1911)*	88, 88.1
Rush Medical College	(1911)	86.6
Drake University, (1911) 85.5, 86, 87.7, 87.9, 87.9, 88.7, 90, 90.7, 91.1, 91.6, 93.4, 93.9, 94, 94.4.		
Barnes Medical College	(1911)	84.4
Creighton Medical College	(1911)	79, 80, 81.4, 85.2
Albany Medical College	(1905)	90.6

FAILED

College	Year Grad.	Per Cent.
Hahnemann Medical College and Hospital, Chicago	(1911)	71.9
Baltimore Medical College	(1908)	77*
University of Pittsburg	(1907)	67.9

At the examination held at Iowa City, June 8-10, the total number of candidates examined was twenty-seven, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
State University of Iowa, College of Medicine, (1897) 85.2; (1911) 84, 84.7, 85, 85.4, 86.7, 87, 87.1, 87.7, 88.2, 88.5, 88.5, 89, 89, 89, 89.2, 89.6, 89.7, 91, 93.1, 93.5, 94.		
State University of Iowa, Homeopathic College, (1911) 83.1, 85, 86.9		
Jefferson Medical College	(1911)	91
University of Pennsylvania	(1909)	92

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* Fell below 50 in one subject.

Iowa Reciprocity Report

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports that at the meetings held by that board April 26 and July 19-21, 1911, 32 candidates were licensed through reciprocity. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
George Washington University	(1907)	Maryland
Denver and Gross College of Medicine	(1907)	Colorado
Bennett Medical College	(1907)	Illinois
Coll. of Phys. and Surgs., Chicago. (1903) (1904)	(1908)	Illinois
Hahnemann Med. Coll. and Hosp., Chicago. (1905)	(1910)	Illinois
Northwestern University Med. Coll., (3, 1909)	(2, 1910)	Illinois
Chicago College of Medicine and Surgery	(1909)	Illinois
Rush Medical College	(1909)	Illinois
Keokuk Medical College, Coll. of Phys. and Surgs.	(1900)	Missouri
University of Louisville	(1909)	Illinois
Woman's Medical College of Baltimore	(1910)	Maryland
Hamline University	(1908)	Minnesota
Washington University, St. Louis	(1905)	Missouri
St. Louis [illegible] and Surgeons	(1909)	Illinois
Ensworth [illegible]	(1909)	Missouri
Marion-Sim[illegible]	(1898)	Indiana
University [illegible] sas City	(1906)	Missouri
University of Nebraska	(1910)	Nebraska
Creighton Medical College (1907)	(1910)	Nebraska
Starling-Ohio Medical College	(1910)	Ohio
Jefferson Medical College (1909) Nebraska;	(1887)	Ohio
Marquette University, Milwaukee (1908)	(1909)	Wisconsin

Maine July Report

Dr. Frank W. Searle, secretary of the Maine Board of Registration of Medicine, reports the written examination held at Augusta, July 6-7, 1911. The number of subjects examined in was 10; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 50, of whom 46 passed and 4 failed. One candidate was licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Yale University	(1907)	88
University of Louisville	(1910)	76
Medical School of Maine, (1879) 77; (1889) 89; (1911) 82, 83, 85, 85, 86, 86, 88, 90.		
Baltimore Medical College	(1911)	85
Maryland Medical College	(1910)	81, 84
College of Physicians and Surgeons, Baltimore	(1911)	81
University of Maryland	(1909)	84
Harvard Medical School (1908) 93;	(1911)	86
College of Physicians and Surgeons, Boston, (1911) 76, 81, 82, 84, 86, 88.		
Tufts College Medical School, (1910) 90; (1911) 81, 83, 85, 87, 93		
Boston University	(1908)	88
Columbia University, College of Phys. and Surgs.	(1911)	84
Hahnemann Medical Coll. and Hosp., Philadelphia	(1910)	77, 88
Temple University	(1911)	88, 91
University of Pennsylvania, (1900) 90; (1909) 92; (1910) 85, 86, 91; (1911) 88.		
University of Vermont (1899) 88;	(1909)	76
McGill University, Quebec	(1910)	86

FAILED

College	Year Grad.	Per Cent.
Hahnemann Medical College and Hospital, Chicago	(1909)	74
Medical School of Maine	(1911)	80*
College of Physicians and Surgeons, Boston	(1911)	70, 72

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Baltimore Medical College	(1908)	Maryland

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* Fell below 60 in one or more subjects.

Michigan June Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Ann Arbor, June 13-15, 1911. The number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 65, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Cooper Medical College	(1904)	86.1
Chicago College of Medicine and Surgery	(1911)	84.7
Johns Hopkins University (1910) 83.1;	(1911)	85
University of Michigan, Dept. of Med. and Surg., (1889) 85.7; (1898) 83.9; (1911) 79.9, 81.2, 81.3, 81.7, 82, 82.2, 83.3, 84.4, 84.6, 84.7, 84.8, 84.8, 85.2, 85.2, 85.2, 85.2, 85.3, 85.9, 86, 86.2, 86.2, 86.3, 86.4, 86.6, 86.6, 86.6, 86.7, 86.8, 87, 87.2, 87.2, 87.3, 87.3, 87.4, 87.6, 87.9, 88, 88.2, 88.4, 89.2, 89.3 89.5, 89.8, 90.3, 91.3, 91.4.		
University of Michigan, Homeopathic Department, (1911) 82, 82.8, 83.2, 83.8, 86.6, 87.5, 87.5, 89.2, 89.2, 90.2.		
[illegible] College	(1911)	83.5
[illegible]	(1911)	85.5
[illegible]	(1908)	88.8

New Mexico April Report

Dr. J. A. Massie, secretary of the New Mexico Board of Health and Medical Examiners, reports the written examination held at Santa Fe, April 10-11, 1911. The number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 2, both of whom passed. Twenty-five candidates were licensed on presentation of satisfactory credentials. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Tennessee Medical College	(1891)	78.8
Gate City Medical College	(1907)	77.3

LICENSED ON PRESENTATION OF SATISFACTORY CREDENTIALS

College	Year Grad.
Denver and Gross College of Medicine (1904)	(1906)
Georgetown University	(1910)
College of Physicians and Surgeons, Chicago (1897)	(1909)
Northwestern University Medical School (1892)	(1906)
Hahnemann Medical College and Hospital, Chicago	(1886)
Hospital College of Medicine, Louisville	(1903)
University of Louisville	(1892)
University of Maryland	(1909)
College of Physicians and Surgeons, Baltimore	(1892)
Barnes Medical College	(1898)
St. Louis College of Physicians and Surgs. (1893) (1898)	(2, 1910)
New York University Medical College	(1884)
Medical College of Ohio	(1903)
Western Reserve University	(1908)
University of Pennsylvania	(1909)
Medico-Chirurgical College, Philadelphia	(1901)
University of Nashville (1903)	(1904)
Queen's University, Kingston, Ontario	(1893)

North Dakota July Report

Dr. H. M. Wheeler, former secretary of the North Dakota State Board of Medical Examiners, reports the written examination held at Grand Forks, July 5-7, 1911. The number of subjects examined in was 14; percentage required to pass, 75. The total number of candidates examined was 18, all of whom passed. Twelve candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
North[illegible] University Medical School	(1911)	81, 84
[illegible] College	(1896)	75
[illegible], College of Medicine	(1902)	83
Keokuk Medical College, Coll. of Phys. and Surgs.	(1906)	80
University of Louisville	(1911)	91
Harvard Medical School	(1888)	86
University of Michigan, Dept. of Med. and Surg.	(1906)	81
University of Minnesota, Coll. of Med. and Surg.	(1910)	80
Minneapolis College of Physicians and Surgeons	(1903)	81
Barnes Medical College	(1899)	83
Creighton Medical College	(1911)	82
Jefferson Medical College	(1910)	89
Ohio Medical University	(1894)	85
Woman's Medical College of Pennsylvania	(1910)	85
University of Vermont	(1892)	78
Western University, London, Ontario	(1910)	84
University of Toronto, Ontario	(1911)	84

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Bennett Medical College	(1909)	Illinois
[illegible] and Surgeons, Chicago	(1910)	Illinois
[illegible] and Hosp., Chicago	(1910)	Illinois
[illegible]	(1909)	W. Virginia
[illegible] Coll. of Med. and Surg.	(1904)	
[illegible]		Minnesota
Hamline University	(1908)	Minnesota
Jefferson Medical College	(1905)	Minnesota
University of Vermont	(1908)	New Hamp.
Marquette University	(1910)	Wisconsin
Laval University, Quebec	(1904)	Maine

Oklahoma July Report

Dr. John W. Duke, secretary of the Oklahoma State Board of Medical Examiners, reports the written examination held at Guthrie, July 11-15, 1911. The number of subjects examined in was 14; total number of questions asked, 120; percentage required to pass, 70. The total number of candidates examined was 74, of whom 52 passed, including 3 osteopaths and 22 failed, including 2 osteopaths. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University [illegible]	(1911)	88
College of [illegible]ock	(1911)	72, 80
Atlanta Col[illegible]	(1910)	77
Denver and [illegible]	(1910)	84
Hering Medical College	(1909)	87
Chicago College of Medicine and Surgery	(1911)	87

Chicago Homeopathic Medical College	(1897)	81
Hahnemann Medical College and Hospital, Chicago	(1911)	85
Louisville Medical College	(1906)	77
Tulane University of Louisiana	(1911)	87
Flint Medical College	(1900)	79
Harvard Medical School	(1909)	75
Ensworth Medical College	(1911)	71
American Medical College, St. Louis	(1894)	88
University of Missouri	(1908)	85
St. Louis University	(1910) 80; (1911)	82
Univ. Medical College, Kansas City	(1897) 80; (1911)	75, 77, 82
Barnes Medical College	(1911)	76
St. Louis Coll. of P. and S.	(1909) 79; (1911)	71, 80
Columbia Univ., Coll. of P and S.	(1911)	79
University of Oklahoma	(1911)	74, 76, 78, 80, 82, 83, 84, 87
Medico-Chirurgical Coll., Philadelphia	(1903) 81; (1905)	76
Meharry Medical College	(1908) 70; (1909)	72, 73
Vanderbilt University	(1910) 91; (1911)	90
University of Nashville	(1893) 71; (1909) 84; (1911)	87
Fort Worth University	(1911)	84
University of Texas	(1910) 89; (1911)	85
Baylor University	(1911)	75

FAILED

University of Arkansas	(1911)	59, 72 *
Coll. of P and S., Little Rock	(1908) 59; (1911)	46
College of Physicians and Surgeons, Chicago	(1890)	70 *
Illinois Medical College	(1910)	46
Keokuk Med. College, Coll. of P. and S.	(1903)	59
Louisville Medical College	(1880)	70 *
Ensworth Medical College	(1911)	71 *
Missouri Medical College	(1886)	45
Leonard Medical School	(1911)	69
University of Oklahoma	(1911)	67, 76 *
Tennessee Medical College	(1905)	66
Meharry Medical College	(1907) 69; (1911)	67, 74 *
Memphis Hospital Medical College	(1911)	77 *
University of West Tennessee	(1910) 68; (1911)	70*

* Fell below 50 per cent. in one or more branches.

Oregon July Report

Dr. E. B. McDaniel, secretary of the Oregon State Board of Medical Examiners, reports the written examination held at Portland, July 5-7, 1911. The number of subjects examined in was 15; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 96, of whom 65 passed, including 13 osteopaths and 31 failed, including 5 osteopaths. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Gross Medical College	(1901)	82.9
Denver and Gross College of Medicine	(1908)	78.2
George Washington University	(1908)	76.4
Northwestern University Medical School,	(1892) 70.4;† (1893) 81.2; (1900) 71.6;† (1906) 79.6; (1908) 76.1, 86.8; (1909) 92.	
College of Physicians and Surgeons, Chicago,	(1891) 78.6; (1897) 76.2.	
Jenner Medical College	(1898)*	
Hahnemann Medical College and Hospital, Chicago,	(1895) 77.5; (1910) 80.5.	
Rush Medical College	(1909) 83.3; (1911)	85
University of Iowa, College of Medicine	(1910)	79.9
College of Physicians and Surgeons, Kansas City	(1904)	80.4
Johns Hopkins University	(1911)	89.2
Harvard Medical School	(1904)	90.8
Tufts College Medical School	(1901)	75.9
University of Michigan, Dept. of Med. and Surg.	(1909)	82.4
Barnes Medical College	(1911)	79.7
Creighton Medical College	(1896)	76
Columbia University, College of Physicians and Surgeons,	(1885) 73.5;† (1898) 86.2.	
Ohio Medical University	(1904) 75.2; (1906)	79.4, 83.3
Pulte Medical College	(1888)	68.7†
University of Oregon,	(1909) 84.2; (1910) 76.2; (1911) 75.3, 76.4, 77.9, 79.1, 80.8, 81.2, 83.4, 84.6, 85.6.	
Willamette University	(1911)	83.8
Hahnemann Medical Coll. and Hosp., Philadelphia	(1909)	78.1
University of Pennsylvania	(1906)	84.2
Jefferson Medical College	(1901) 83.3; (1910)	84.7
University of Vermont	(1907)	81.3
McGill University, Quebec	(1897)	77.4
University of Turin, Italy	(1899)	71.6†
Nongraduates		78.6, 80

FAILED

Hahnemann Medical College and Hospital, Chicago	(1904)	72.2
Rush Medical College	(1903)	69.3
Chicago College of Medicine and Surgery	(1909)	61.2
Western Eclectic College of Medicine and Surgery	(1908)	58.6
Kentucky S[illegible]	(1903) 72.8; (1907)	67.8
University [illegible]	(1907) 73.8; (1910)	71.5
Minneapolis [illegible] nd Surgeons	(1901)	67.3
St. Louis [illegible]	(1905)	59.5
Ensworth Medical College	(1908)	49.3
Barnes Medical College	(1904)	65.8
Kansas City Medical College	(1905)	70.9
Syracuse University	(1908)	73.5
Starling-Ohio Medical College	(1911)	73.5
Ohio Medical University	(1906)	69
Pulte Medical College	(1894)	67.2
Starling Medical College	(1891)	49.3
University of Oregon	(1910) 71.2; (1911)	69, 72
Queen's University, Kingston, Ontario	(1910)	62.2
Nongraduates		56.1, 65.5, 67.4, 71.2

* No grade given.
† Five points allowed [illegible] 10 years of active practice.

Book Notices

AN ATTEMPT TO CORRECT SOME OF THE MISSTATEMENTS MADE BY SIR VICTOR HORSLEY, F.R.S., F.R.C.S., AND MARY D. STURGE, M.D., IN THEIR CRITICISMS OF THE GALTON LABORATORY MEMOIR: A FIRST STUDY OF THE INFLUENCE OF PARENTAL ALCOHOLISM, ETC. By Karl Pearson, F.R.S. Questions of the Day and of the Fray. No. III. Department of Applied Mathematics, University College, London. Paper. Price, 1 shilling net. Pp. 42. London: Dulau & Co., 37 Soho Square, W., 1911.

Last year there appeared, issued from the Eugenics Laboratory, London University, a pamphlet by Professor Karl Pearson, entitled "The Influence of Parental Alcoholism on the Physique and Ability of the Offspring." The conclusion reached and specially emphasized by the author was that there was no such influence. Naturally this would be taken up and made the most of by the advocates of the liquor interests and it excited a rather sharp controversy in the medical journals and in the lay press. The present pamphlet is described as an attempt to reply to certain criticisms in an article in the *British Medical Journal* by Sir Victor Horsley, the well-known British surgeon, and Dr. Mary D. Sturge. Sir Victor Horsley and Dr. Sturge have, according to the showing of this pamphlet, misapprehended some of Professor Pearson's views and statements, as is natural in controversies of this nature. His reply to one or two of their criticisms, however, seems to us not altogether conclusive. At least there is a margin left for doubt as to the value of his methods and their results. His idea in the study was to ascertain whether the alcoholism of the parents had a marked influence on the mentality and physique of the offspring as children, as is stated in the pamphlet. By "offspring" he evidently meant only the children under the age of puberty, but did not specifically state that, probably assuming that it would be readily understood. The charge of Sir Victor Horsley of indefiniteness in the use of the term "offspring" is at least partly justifiable. Professor Pearson's distinction between sober and drinking parents also seems to us an indefinite one. By "sober" he says is not meant totally abstaining. It is applied here to cases in which the use of alcohol "is so moderate, if it exists, that it does not appear to interfere with the health of the individual or the welfare of the home." There are many men who use alcohol to what might properly be called excess and ultimately to their own disaster without showing it in their general appearance or even in the condition of their families. It is the observation of some medical men that their children are liable to suffer in the long run from such parental habits though they may not show it for a long time. Professor Pearson insists on a graded effect of alcohol which we may admit, but there is also a graded idiosyncrasy which is not always directly parallel with its apparent effects. A classification made by officials, or by lay observers generally, on the basis here indicated would not seem to us a very good basis for statistics. In fact one might take cases of parental insanity which, whatever one's theories or heredity may be, is practically hereditary in a very large proportion of cases, and get very similar results to those obtained by Professor Pearson. Comparatively few of the children of insane parents show their heredity before the age of puberty. There is no evidence in the pamphlet before us (we have not seen the original paper) that any attempt was made to estimate stigmata or other mental or physical evidences of degeneracy so far as they could be detected in the immature children of alcoholic parents. Professor Pearson himself admits the possibility of a direct heredity of alcoholism and presumably of other forms of degeneracy in the children of inebriates after the stress of puberty has passed. His line of investigation, it seems to us, was practically defective and the results therefore cannot be considered of great value. He admits a 20 per cent. higher death-rate in the children of alcoholic parents over those of sober parents. But this he accounts for largely by the accidents and unfavorable home environment to which they are subjected by the drinking habits of their parents, which deduction of course may be correct. It is something in the line of Dr. Archdall Reid's contention that alcoholism improves a population by weeding out its degenerates. A large part of the pamphlet is taken up with the discussion of the question of wages as showing that there is no very great difference between the wage-earning capacity of the drinking and the sober workman, but nothing is said about what seems to us one of the most important factors, the equalizing tendency of the trades unions. As to the temper of the attempt to reply to the criticisms, it certainly is open to the charge of being unjudicial, and the reference to authorities is not always happy. We do not know what sort of authority Stöcker is, but his ability to find epilepsy or insanity as an antecedent to nearly all his eighty-nine cases of extreme alcoholism seems a little remarkable. Demme, whom he also quotes, is not a very recent authority and his ideas at the time he wrote in regard to the effects of alcohol on the efficiency of workers as indicated in the quotation given are not in accordance with the best modern medical opinion on the subject. We doubt also whether Crothers, for that is what we take "Chroters" to mean, would entirely agree with Professor Pearson's views.

If the Eugenics Laboratory is to devote its studies to such questions it is to be regretted. Professor Pearson may, as he says, have been entirely without bias at the beginning of his study but that is evidently not his mental attitude at the present time. He is an expert in the handling of statistics, but he does not appear to us always successful in the estimation of the value of the data on which they are based.

Joint Tuberculosis. By Leonard W. Ely, M.D., Consulting Orthopedist to the County Hospital, Denver. Cloth. Price, $2.50 net. Pp. 243, with 72 illustrations. New York: William Wood & Co., 1911.

As the author correctly states in his preface, "The time seemed ripe for a review of more recent knowledge of the subject, inasmuch as the views held were so conflicting that further pathologic study was required." In order to accomplish this, he studied a large number of microscopic specimens from cases, and the results from various modes of treatment. The section on pathology has much to commend it, and is as thorough as one could wish it. His view "that the trend of modern opinion is away from heredity and toward infection from without in cases of tuberculosis" is one generally accepted. The pathologic studies represent much painstaking labor, and are greatly helped by a large number of excellent microphotographs. The only criticism to be offered is that the descriptions of the photographs are often insufficient. Some radiographs are so poorly reproduced that it would have been better to omit them. Especially is this true of Part 1, and, for example, Figure 34.

It is to be greatly regretted that so little reference has been made to the value of the fresh-air treatment and seacoast sojourns.

The second part is devoted to the discussion of tuberculosis of the individual joints. It would have been much more satisfactory to limit the subject of general discussion in Part I, and to elaborate the diagnosis and differential diagnosis of tuberculosis of individual joints, which latter is discussed in a rather incomplete manner.

About forty pages of the book are devoted to histories, which, although they represent much painstaking labor, are of comparatively little value in a book of this kind. The illustrations in general are clear. The volume may be regarded as one of the best in this field of surgery.

Lehrbuch der Augenheilkunde in der Form klinischer Besprechungen. Von Dr. Paul Römer, o.ö. Professor der Augenheilkunde, Direktor der
wald.
Paper. Price, 22 marks. I
erlin:
Urban & Schwarzenberg (N

The student of ophthalmic science cannot complain nowadays of a paucity of either domestic or foreign text-books, compendiums, treatises and monographs on the eye and its diseases. While for Americans practicing in America the products of the domestic pen are far more likely to be of practical value than any foreign manual, however well written, the clearly expressed words of the professor of ophthalmology at Greiswald should not be forgotten when a German authority is to be consulted.

The familiar form which these teachings take—that of talks to a class—are at least pleasant reading and one soon feels that one is under the spell of a competent teacher, investigator and thinker. Römer is probably best known to us as an experimenter and investigator in the realms of applied therapeutics—easily the weakest side of German ophthalmology—and we are not disappointed, especially while reading the chapters on treatment, to find that Römer deals more extensively and intelligently with most eye diseases (as we see them) than does the average compiler or writer of German text-books. The various diseases of the eyelids, conjunctiva and cornea are considered at as great length as the limitations of a schoolbook permit, while the bacteriology of the eye has received even more attention than is commonly given to it in works of this sort. Quite naturally, the treatment of trachoma is completely considered by a man who was probably the first to show us how jequirity could be effectively and safely administered in this serious and intractable disease.

For some occult reason the methods employed in teaching refraction to students, both undergraduate and postgraduate, in German universities are such as cannot be regarded as adequate for American physicians; even our clinic patients demand and usually receive more careful attention to their refractive errors and muscular anomalies than is expended on the corresponding class in Germany. This defect, as we regard it, is reflected in most German treatises, which would, indeed, be false guides for American practice. Römer's lectures form no exception to the rule, the subject of "glass-fitting" being dismissed in the usual light and airy fashion through the reading of a few pages of print.

On the other hand, we are well pleased with the manner in which the neurology of the ocular apparatus is taught and by the discussion of migratory ophthalmia. These and many other subjects are fully and intelligently dwelt on.

The illustrations, colored as well as black and white, are not up to the average; most of the former are useless and many of the latter inadequate to furnish any practical idea to the reader. Some errors in proof-reading are noticed; for instance, Landolt and Weeks are transformed into "Landoll" and "Week."

Die Massenverhältnisse des Herzens unter pathologischen
ntomische Untersuchungen. Von Sofus
43, with illustrations. Christiania:
Jacob Dybwad, 1911.

Numerous studies have been made of the size of the heart under normal and pathologic conditions. The difficulties in the way of obtaining accurate results are great, and many of the methods are faulty. Failure to take into consideration the amount of surrounding fat, or the stumps of large vessels may be cited as instances of these inaccurate methods. Widerøe has tried to overcome the objections to these various methods and by following out his own, which is modeled on that of W. Mueller, he has reached results that he regards as fairly trustworthy. His tables show a careful study of the age of the patient, the height, weight, chest measure; with details as to the heart, such as weight as a whole, weight and measurements of the various parts such as ventricles, auricles, septum ventriculorum, etc. The diseases with which the patients were affected are known and there is a consideration of the size in relation to the pathologic conditions. The monograph is a real contribution to our knowledge of this subject and should be consulted by one interested in this topic. There is a good bibliographic index, with numerous references to the literature scattered throughout the text.

The Healthful Art of Dancing. By Luther H. Gulick, M.D., Author of "The Efficient Life," etc. Cloth. Price, $1.40 net. Pp. 273, with illustrations. New York: Doubleday, Page & Co., 1910.

Dancing is such a popular recreation that there seems little need for a book advocating it, unless it be a plea for its rational use. This is what Dr. Gulick has made. He explains the inborn appreciation of rhythm, and his contribution ought to help to remove some of the evils which have been grafted on to this form of recreation. The folk dances which mean so much in European life and which are being revived throughout the United States with wholesome effect are explained and portrayed, adding greatly to the interest of the book.

Handbook of the Trees of the Northern States and Canada East of the Rocky Mountains. By Romeyn B. Hough, B.A., Author of "American Woods." Cloth. Price, $6. Pp. 470, with illustrations. Lowville, N. Y.: R. B. Hough, 1907.

This book will be of value to those who wish to identify the trees of this country, and all lovers of Nature will appreciate it. For each tree there is a full-page picture of the leaves, with either the flower or the fruit, or both, while the opposite page, which contains a general description of the tree, shows also the trunk, a cross-section of the wood and distribution of the species, indicated on a map of the United States. The pictures are excellent and give evidence of much painstaking work in their preparation. The preface gives a glimpse into this labor of the author when he speaks of the difficulty he had some years in finding the flowers of certain trees; it seemed that there were no blossoms that year and the author traveled far in his search. The book also contains a synopsis of the families and genera represented, with analytical keys to enable one to find the species. A glossary and a good index add to the value of the book.

Kurzgefasste chirurgische Operationslehre (Operationskurs). Für Studierende und Aertze. Von. Ad. Oberst, Assistent an der Chirurg. Klinik und Privatdozent für Chirurgie an der Universität Freiburg i. Br. Paper. Price, 7 marks. Pp. 198, with 232 illustrations. Berlin: S. Karger, 1911.

The only criticism which can be made on this, one of the newer German books on operative surgery, is that the subject has grown to be too large to be covered in as few pages as is attempted in this work. In its favor, however, are its illustrations, especially those which are intended to help elucidate the little details of technic, which are not ordinarily shown, are very clear and well reproduced. Throughout the book only the essentials of each operation are given. An excellent description of the osteoplastic method of amputation, according to Bier, is one rarely seen in the newer books on this subject. It can be recommended as a book for beginners.

Tuberculosis as a Disease of the Masses and How to Combat It. Seventh American Edition. Prize Essay by S. Adolphus Knopf, M.D., New York, Professor of Phthisio-Therapy at the New York Post-Graduate Medical School and Hospital. (International Prize Awarded by Committee of the International Congress to Combat Tuberculosis as a Disease of the Masses, at Berlin, July 31, 1900.) Paper. Price, 25 cents. Clóth. Price, 50 cents. Pp. 122, with 64 illustrations. New York: The Survey, 105 E. Twenty-Second Street (1911).

The new edition of this essay is considerably enlarged and improved, and will doubtless prove as useful in the future as the other editions have in the past. The changes are chiefly in the application of the outdoor methods to sleeping facilities and the expansion of the outdoor school. A new chapter on school hygiene is introduced.

Alcoholic Fermentation. By Arthur Harden, Ph.D., D.Sc., F.R.A., Head of the Biochemical Department, Lister Institute, Chelsea. Cloth. Price, $1.25 net. Pp. 128, with illustrations. New York: Longmans, Green & Co., 1911.

This is another one of the valuable monographs on biochemistry written by specialists in their respective lines and edited by R. H. Aders Plimmer and F. G. Hopkins. It gives one extreme pleasure to find this subject of such general interest and extreme importance covered in so concise and yet in so comprehensive a way. The work is made especially valuable in that it gives a very good bibliography, and in that it is a very complete review of the exhaustive work of Harden and Young on alcoholic fermentation.

Yellow Fever and Its Prevention. A Manual for Medical Students and Practitioners. By Sir Rubert W. Boyce, M.B., F.R.S., Holt Professor of Pathology, University of Liverpool. Cloth. Price, $3.50 net. Pp. 380, with 61 illustrations. New York: E. P. Dutton & Co., 1911.

This is a thorough work by an author who has had a wide experience in connection with the epidemics of yellow fever in the West Indies, in New Orleans and on the west coast of Africa. The history of the disease in these various regions is first considered, then follows a treatise on the symptomatology, diagnosis, pathology and prophylaxis of the disease. The book is well illustrated and will be welcome to sanitarians, especially those who are interested in tropical medicine.

Medicolegal

Revocation of License for Fraudulent Advertising as Unprofessional Conduct—Construction and Validity of Statute

(Aiton vs. Board of Medical Examiners of Arizona, 114 Pac. R. 962.)

The Supreme Court of Arizona affirms a judgment of the District Court sustaining a demurrer to a petition for a writ of certiorari to review the proceedings of the board which resulted in the license of the petitioner to practice medicine in that territory being revoked [i. e., the license remains revoked]. The revocation was after due notice and a hearing, based on an affidavit filed with the board, charging the petitioner with having been guilty, since the license was issued to him, of unprofessional conduct rendering him unfit to practice medicine in the territory, in that he wilfully and knowingly published in a newspaper an advertisement of remarkable cures claimed to have been accomplished by means of certain mineral waters and preparations used and controlled by him, and claiming that such waters and preparations would cure incipient tuberculosis, systemic catarrh, catarrh of the head, Bright's disease, diabetes, rheumatism and numerous other diseases. The advertisement was set forth in full in the affidavit, and it was charged that the publication was made for the purpose of soliciting and procuring wrongfully and fraudulently patients to submit themselves to medical treatment by him; that certain of the statements contained in the advertisement were false, and were known to the petitioner to be false when he made them, and were published with the intent to deceive the public and to impose on the credulous and ignorant.

The question presented by this appeal was the validity of the provision in the statute that: "Upon proper proof to the Board of Medical Examiners of Arizona that the holder of any license issued under the provisions of this act has been guilty, since the issuance thereof, of any grossly immoral or unprofessional conduct rendering him or her unfit to practice medicine in this territory, or has been convicted of any felony, said board shall, after due notice to such holder and full opportunity to him or her to defend against or refute such charges, revoke and cancel such license. . . ." It was contended that the statute, since it does not declare what shall be considered unprofessional conduct, is void for uncertainty. It was argued that "the term 'unprofessional conduct' is so vague and indefinite that no one can be certain just what it embraces. It might be declared to include a breach of professional ethics, irrespective of any moral turpitude, and might be declared to include acts of so trivial a nature and of so little importance as to wholly preclude any of the elements of a crime."

The petitioner attempted to distinguish certain cases which hold valid statutes conferring on boards power to revoke the licenses of those found guilty of immoral conduct from this on the ground that the term "immoral conduct," while in a measure indefinite, "contains an element of moral turpitude or disregard of the settled ideas or principles of morality, and are very easily recognized, by reason of their being a breach of what we all know to constitute moral conduct," but that "unprofessional conduct does not consist simply of breaches of moral conduct, does not necessarily include moral turpitude, and might consist of anything temporarily frowned on by any board of physicians temporarily in power." His position finds support in decisions by the Supreme Courts of Kentucky and California and the Court of Appeals of the District of Columbia.

But this court cannot agree that the meaning to be given the term "unprofessional conduct," as used in this statute, is that suggested. It thinks it should be held to mean that which is by general opinion considered to be grossly unprofessional because immoral or dishonorable. This court cannot perceive that the petitioner's interpretation is tenable or could have been contemplated by the legislature when the language employed and the purpose of the legislation is considered. "Grossly immoral and unprofessional conduct" excludes the idea that a license may be revoked for trivial reasons or for a violation of what might be regarded as mere professional ethics.

Giving the words the construction this court does, the question of the validity of the statute is foreclosed by the decision of the Supreme Court of the United States. In Meffert vs. State Board of Medical Registration & Examination et al., 66 Kan. 710, the action of a board in revoking a license of a physician was upheld under a statute giving it the power to revoke the license of one guilty of gross immorality. On an appeal to the Supreme Court of the United States, the judgment was affirmed without discussion. Meffert vs. Packer, 195 U. S. 625. In that case the statute does not define what shall be considered gross immorality. Its ascertainment if left to the common judgment as to what is grossly immoral, as the Arizona statute leaves grossly unprofessional conduct to be ascertained. See, also, State vs. Board, 34 Minn. 391.

It is too well settled to admit of discussion that the state, in its exercise of the police power, may prescribe the qualifications of those who are permitted to practice medicine, and may commit to a board created by it the authority to ascertain whether an applicant for permission to practice possesses the requisite qualifications, and also the power, after notice and opportunity to be heard, to revoke the license of any who become disqualified either morally or intellectually.

Communications to Physicians Sent to Make Reports Not Privileged

(Chicago, Indianapolis & Louisville Railway Co. vs. Gorman (Ind. App.), 94 N. E. R. 730.)

The Appellate Court of Indiana, Division No. 2, holds that in an action against a railway company for personal injuries communications made to a physician or surgeon who was sent merely to make an examination and report on it are not privileged. The court says that the evidence disclosed that the witness was a surgeon of the railway company at the time of the injury; that he told the injured man (plaintiff) that he was requested by the station agent to visit him, and make an examination so that he could make the ordinary report as surgeons are required to make to the company in cases of that kind; that he was there for the purpose of making an examination as the physician of the railway company to make his report to the railway company, and that he did make an examination as such physician of the said company, but that he did not prescribe for the plaintiff, and had nothing to do with the case as to treatment. In other words, it was evident that his visit was purely on a business matter, and not in a professional capacity, and that the plaintiff so understood the purpose of his call. Under such circumstances there were no privileges protecting a statement made to him by the plaintiff, such as that he heard the train coming, but thought he had time to get over.

Parents Not Liable for Med[illegible] Rendered to Emancipat[illegible]dren

(Brosius vs Barker [illegible] (Mo. App.), 136 S. W. R. 18.)

The Springfield (M[illegible]is.) Court of Appeals affirms a judgment for the defendan[illegible] in this suit of a physician to recover from a father fo[illegible] for medical services rendered to his son, about 20 years [illegible] of age, in a distant state. The son had left his father's [illegible]ome in Missouri and gone to Oregon, where he was taken sick with typhoid fever, and, because he claimed to be without money, the plaintiff, a physician, sent him to a hospital and assumed the charges due the institution for the care of the patient. The father, in answer to a letter notifying him that his boy was there sick, wrote to the superintendent of the hospital, saying, "I have a dear boy in your institution sick with fever. I have sent him some money and will send more soon. You will give him all the attention you can and greatly oblige a father so far away, and kindly let me know from time to time how he is getting along."

The father's defense to the plaintiff's suit for his own services and the balance of account due the hospital, which had been assigned to him, was that he had previously emancipated his son and was not liable for his care. The court thinks that [illegible] evidence was sufficient to require a submission to the jury [illegible]he defense of emancipation, and holds that, as they found [illegible]he father thereon, the further question of whether the [illegible] should pay the plaintiff for the services he and those associated with him rendered in caring for his son while he was sick and perhaps would have perished had such services not been rendered, must be left to the interior forum, as the tribunal of conscience has well been called.

The plaintiff, the court says, knew at the time the defendant's son applied to him for assistance that the boy was not living with his father. He was informed that the father lived in Missouri and therefore it seems to the court that the arrangement between the father and son under which the boy had left home was a matter that the plaintiff should have inquired into before rendering the services to the boy on the credit of the father. He must have known that sometimes children who have good homes and are supplied with all the necessaries and the luxuries of life become dissatisfied, and without any reason or excuse leave home, and that under such circumstances it would be unjust to hold the parent liable on any contracts made by the minor. It was not necessary that the plaintiff should have had actual knowledge that an arrangement existed between the father and son under which the father was released from liability.

Nor does the court consider that the defendant was rendered liable by his letter, as there was nothing in the letter agreeing to pay for the services rendered, and when it was written a contract existed between the plaintiff and the son relating to the services sued for in this case, and there was no evidence that the letter in any wise changed the relation of the parties or the terms of the contract under which the boy was then being treated, or that any additional attention was given the boy on account thereof. On the contrary, the statement is found to the effect that some money had been sent to the boy and more would be forwarded. If the father intended to legally bind himself for the payment of the plaintiff's bill, he did not so state.

Admissible Evidence of Illegally Prescribing Cocain

(Stanley vs. State (Ga.), 70 S. E. R. 894.)

The Court of Appeals of Georgia affirms a judgment convicting the appellant Stanley of illegally prescribing cocain. The court says that the act on which the indictment was framed makes it a penal offense for any practitioner of medicine to furnish to or prescribe for the use of any habitual user of the same any of the narcotic drugs therein mentioned, unless the person for whom the drug is furnished or prescribed is under his professional care and such drug is deemed necessary for his proper treatment. In other words, the statute makes the controlling question one of good faith on the part of the practitioner of medicine in furnishing or prescribing the drug; the issue being whether he does so in good faith to a patient, or whether the prescription is made for the purpose of evading the provisions of the act. The accused in this case contended in his defense that the habitual user of the narcotic drug in question was a patient of his and under his treatment, and that he prescribed cocain for her because he deemed it necessary for her proper treatment. The state contended that the act was not in good faith, but was done for the purpose of evading the provisions of the statute. Any testimony that would tend to illustrate this issue would be admissible in evidence, and testimony that the accused made other prescriptions of a similar character, for many different persons, was admissible in evidence for the purpose of establishing the criminal intent.

Admissibility in Evidence of Record Cards

(Douler vs. Prudential Insurance Co. (N. Y.), 128 N. Y. S. 396.)

The Second Appellate Division of the Supreme Court of New York says that this was an action on an insurance policy on the life of one Margaret Douler, who died of pulmonary tuberculosis in December, 1909. The application for the policy was made July 22, 1909, and the company undertook to prove that at that time, and for a considerable period before, the insured was suffering from pulmonary tuberculosis and knew it. In the attempt to prove that defense, the company called as a witness a physician who was in 1908 in attendance at a public dispensary, in which capacity he had made certain entries on a record card, which contained answers to questions put by him to a woman patient who had given the name of Margaret Douler. He had made certain entries on the card when the patient called at the clinic at various times in October, 1908, and he swore that these entries were true when made, although he no longer had any personal recollection of the matters so entered. The company offered the card in evidence, but the evidence was rejected on the ground that there was not sufficient proof of identity between the insured and the patient, and on the further ground that the record card was not competent evidence, even if identity be assumed. A similar question arose as to the introduction of another record card, kept by a witness who was a nurse in the employment of the board of health, relating to the case of a patient known as "Margaret Douler." That card was likewise excluded when offered in evidence. The court holds that the rejection of these cards was reversible error. As to the identity of the patient at the clinic with the person insured in the policy, similarity of name made a *prima facie* case of identity, according to long-established rules of law. And while these record cards were not competent evidence of their contents simply as records, yet where it was shown that the entries thereon were made by the witness at the time of the happenings described as taking place in his presence, and were honestly made by him, such entries might be admissible where the witness had ceased to have any personal recollection of the facts in question. There was also other testimony offered and received to show that the insured had pulmonary tuberculosis for some time prior to the application for the policy, and the exclusion of the record cards deprived that evidence of some corroboration, and was therefore not harmless.

Validity of Act Making Unlawful Possession of Opium, Etc.

(*Ex Parte Yun Quong (Cal.), 114 Pac. R. 835.*)

The Supreme Court of California in this case holds constitutional the statute of that state which makes it unlawful for any person to have in his possession any cocain, opium, morphin, etc.; or any preparation thereof containing more than 2 grains to the fluid ounce, except on the written order or prescription of a physician, dentist or veterinary surgeon licensed to practice in the state, or unless such possession is that of a jobber, wholesaler, manufacturer to pharmacies, retail pharmacy, physician, dentist or surgeon licensed to practice in the state.

Yun Quong had been arrested for having in his possession a certain preparation of opium prohibited by the act, and attacked the validity of the law, insisting that opium is property and that the act making the mere possession of it a crime is an infringement on the rights of liberty and property. But the court declares that if the belief that the use of opium, once begun, almost inevitably leads to excess may be entertained by reasonable men—and the court does not doubt it may—such belief affords a sufficient justification for applying to opium restrictions which might be unduly burdensome in the case of other substances, as, for example, intoxicating liquors, the use of which may fairly be regarded as less dangerous to the users or to the public. Assuming, as the court must, that the legislature acted on some such view, the restrictions on the right to possess the drugs named in the act cannot be said to be clearly unreasonable or unnecessary for the protection of the public from the evils against which the legislation in question is aimed.

Provision for Physician on Jury in Lunacy Inquests not Unconstitutional

(*State vs. Linderholm (Kan.), 114 Pac. R. 857.*)

The Supreme Court of Kansas holds that the statute of that state providing for a jury, in lunacy inquests, of four persons, one of whom must be a physician, does not violate the right to a jury trial which is guaranteed by the Constitution. The court says that although the hearing of a case of this kind is ordinarily designated as a "trial," it is not so in the sense of the Constitution. The proceeding is merely an inquest, conducted primarily for the benefit of the person whose mental state is in question, and it bears no resemblance to an action, either civil or criminal.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Journal of Missouri State Medical Association, St. Louis

August

1 The Missouri Association for the Relief and Control of Tuberculosis. G. Homan, St. Louis.
2 *Diagnostic Significance of Abdominal Pain. R. M. Funkhouser, St. Louis.
3 *Death of the Fetus in Utero. R. S. Tilles, St. Louis.
4 *Recent Studies in Eclampsia. G. C. Mosher, Kansas City, Mo.
5 *Improved Gravity Apparatus for Intravenous Injection of Salvarsan. J. L. Boehm, St. Louis.
6 Case of Ruptured Ectopic Gestation, Followed by Acute Gastric Dilatation and Paralytic Ileus, Transfusion, Gastric Lavage, Recovery. W. R. Hewitt, St. Louis.
7 Eclampsia. M. Dillon, Fairfield, Mo.
8 Thyroid and Parathyroid Glands. C. Geiger, St. Joseph, Mo.

2. **Abdominal Pain.**—The conclusions deduced by Funkhouser from the study of abdominal pain are: To bear in mind that pain in itself does not tell the whole story, but merely puts the physician and patient on their guard. That there is grave danger following the administration of narcotics which have a great tendency to mask the true condition. That pain is not infallible as to the site of disease. That the initial pain is, in many cases more important than the subsequent diffuse pain that follows. That it is the duty of the physician to educate his clientele relative to abdominal pain, especially should it be the province of that type of medical man, the family physician, who is rapidly disappearing, *triste dictu*, to inform the laity of the significance and the danger of the neglect of abdominal pain.

3. **Death of Fetus in Utero.**—For the determination of fetal death there are, Tilles says, the signs first noticed by the mother, then those observed by the obstetrician both as concerns the mother and the state of the fetus. Observations and sensations on the part of the mother are an absence of fetal movements, heaviness and coldness in the lower abdomen, the feeling of a foreign body in the abdominal cavity, which changes positions with the maternal movements; also a general feeling of coldness or real chills may occur, the breasts are noticed to become smaller, the gradual abdominal enlargement ceases to be noted and becomes stationary or sinks, due to lack of tonicity of the uterus and lacking the resistance of the fetal parts; there is a vague feeling of malaise and languidness characterized by loss of appetite, feeling of lumbago or fatigue, with possibly, in women of delicate nature, a slight evening elevation of temperature. On the part of the obstetrician is noted the absence of fetal heart sounds established after repeated trials, an unusual flabbiness of the uterus instead of the normal resiliency and compressibility, absence of uterine contractions, a possible discharge of meconium, fetid discharges, or flatus from the uterus. Vaginal examination reveals little, as after maceration has occurred the small parts are difficult to feel. The uterus may be hard to differentiate from an abdominal cystic tumor. Knapp claims to have found acetone in the urine, but it has not been confirmed by later experiments. When the cervix admits a finger the relaxed and overlapping condition of the fetal skull bones may be palpated. The effect on the mother is practically *nil* with the exception of the few clinical symptoms mentioned above, unless the fetus undergoes putrefaction with absorption of small parts, the bones then by ulcerative processes attempting to be discharged through the bladder, vagina or rectum, or externally through the abdominal wall.

4. **Eclampsia.**—The treatment employed by Mosher looks to early evacuation of the uterus, as the ovum or fetus is the source of the toxins and statistics show lower mortality after labor. He says that preliminary to delivery, it is best to avoid the use of chloroform during the convulsions; puncture should be made of the membranes to hasten spontaneous dilation and also to lower blood-pressure. Inject veratrum, 15 to 20 drops of the fluid extract, hypodermically and give an enema of warm milk with 40 to 60 grains of chloral. On the base of the tongue place two drops of croton oil. Better,

if it can be done, wash out the stomach and inject through the tube 2 ounces of castor oil with 2 drops of croton oil. Sweating should be induced by hot packs or sweat cabinet for thirty minutes, using ice to the head while heat is applied to the body. A pint of normal salt solution should be injected subcutaneously, or several quarts may, in the emergency, be thrown into the bowel. This sweat and salt injection is to be alternated every hour, provided there is an equillibrium kept between solution injected and sweating. Nitroglycerin if convulsions recur. If patient can swallow she should be given concentrated salts, a dessertspoonful dose every fifteen minutes until catharsis follows. Cups, venesection or leeches may be used if congestion of chest, cyanosed face or sterterous breathing occurs. If medical means fail, manual dilation by Harris' method, followed by forceps or version, are to be considered in each individual case.

5. Abstracted in The Journal, March 11, 1911, p. 732.

Boston Medical and Surgical Journal

August 24

9 Importance of Determining the Causes of Inebriety. B. T. Burley, Worcester, Mass.
10 Wertheim's Method for Removal of Cancer Originating in the Uterine Cervix. H. T. Hutchins, Boston.
11 Suggestion in Medical Practice. G. G. Fernald, Concord, Mass.
12 Sixty Cases of Syphilis Treated with Salvarsan. J. H. Cunningham, Boston.

Chicago Medical Recorder

August 15

13 Vesico-Vaginal Fistula. C. J. Drueck, Chicago.
14 Action of Moderate Continued Force on Cicatricial Tissue. C. S. Case, Chicago.

Denver Medical Times and Utah Medical Journal

August

15 *Gastrectasia. J. K. Miller, Greeley, Colo.
16 Mercury vs Salvarsan. J. Cuneo, Denver.
17 Electrotherapeutics. F. E. Clark, Logan, Utah.

15. **Gastrectasia.**—The most satisfactory treatment of gastrectasia in Miller's opinion is massage. He has used machine massage for nearly six years. It has proven efficient in more than forty cases. Miller has not had a complete failure, and in two cases only was the result but partial. Both the partial cures were tuberculosis patients. Few cases need more than a three-month period to be cured, and so far as Miller has been able to follow his cases the results are permanent. One patient was treated five months before all subjective symptoms disappeared. Miller had occasion to examine the patient a few weeks ago and found him remaining well. Twenty months have passed since his treatment. When treatment began, the lower curvature was almost two finger-widths below the navel, when discharged, the curvature was three finger-widths above. The course given consists of daily treatments of five to seven minutes each for the first month, three treatments a week for the second month, and one or two treatments per week for the remaining four weeks. Miller requires all patients to remain the ninety days under treatment, and few less responsive cases a longer time. A rigid dietary is carried out and is regarded a part of the treatment. When the stomach is ptosed, the vibratory treatment will not restore it, though in some cases decided improvement has been noted. The displaced stomach must be otherwise cared for. Miller uses either the Spivak bandage or the moleskin adhesive apron belt.

Bulletin of Johns Hopkins Hospital, Baltimore

September

18 Zabdiel Boylston, Inoculator, and the Epidemic of Small-Pox in Boston in 1721. R. H. Fitz, Boston.
19 Henry Newell Martin. H. Sewall, Denver.
20 Medical Notes on the Divine Comedy of Dante Alighieri. P. H. Dernehl, Milwaukee, Wis.
21 Molière and the Physician. M. Kahn, New York.
22 Art as Applied to Medicine. M. Brödel.

Journal of Arkansas Medical Society, Little Rock

July

23 State Medicine and Public Hygiene. S. Cooper, Fort Smith.
24 Sanatoria and Hospitals for Tuberculosis. J. S. Shibley, Booneville, Ark.
25 Benjamin Rush and Others on Consumption. J. T. Clegg, Siloam Springs.
26 Needs of the Hour in Controlling Tuberculosis. J. D. Southard, Fort Smith.

New York State Journal of Medicine, New York

August

27 *Exophthalmos, a Common Symptom of Chronic Bright's Disease. H. C. Gordinier, Troy, N. Y.
28 Deaths of Athletes and Fatalities in Athletic Games During the Year 1910. R. E. Coughlin, Brooklyn.
29 *Paralysis of the Upper Extremity Due to Nerve Injuries. N. Jacobson, Syracuse, N. Y.
30 Acute Unilateral Hematogenous Septic Infection of Kidney. A. T. Bristow, Brooklyn, N. Y.
31 Extragenital Chancre. F. J. Resseguie, Saratoga Springs, N. Y.
32 *Hydrotherapeutic Treatment of Chronic Disease of the Heart. J. M. Swan, Watkins, N. Y.
33 Taking Cure at Carlsbad. H. G. Watson, New York.
34 Common Sense in Rearing of Children. C. A. Frost, Utica, N. Y.
35 Recording Blood-Pressure in General Narcosis; Observations on Grams of Agent to Kilos of Body Weight. W. C. Woolsey, Brooklyn.
36 *Two Cases of Heroin Habituation. H. Brooks and H. R. Mixell, New York.
37 Secret Division of Fees. R. T. Morris, New York.
38 Mutual Helpfulness in Conservation of Public Health. W. A. Howe, Phelps, N. Y.
39 Gangrenous Appendicitis Secondary to Puerperal Septicemia. C. C. Zacharie, White Plains, N. Y.

27 and 32. Abstracted in The Journal, May 20, 1911, pp. 1505 and 1506.

29. **Paralysis of Upper Extremity.**—Jacobson illustrates some usual and unusual conditions encountered by presenting the histories of a few cases. I. Fracture of humerus with angulation; nerve not apparently damaged, but adherent to callus for distance of 2 inches; separation of nerve; prompt and complete recovery from paralysis. II. Lacerated wound implicating the musculo-spiral nerve associated with scalp wound and injuries to the shoulder-joint. III. Fracture of the neck of the scapula; displacement of the head of the bone; pressure on and adhesions to the brachial plexus of nerves; compete paralysis of sensation and motion; operation; immediate improvement. IV. Complete division of the fifth cervical nerve; its secondary suture; slow restoration of motion and sensation.

Jacobson contends that when a nerve has been simply stretched over or caught between fragments of bone or entangled in a callus or bound down by adhesions and when no visible damage to the nerve substance has occurred the return of functional activity is prompt and satisfactory without the energetic and long-continued use of such therapeutic measures as electricity, massage, hydrotherapy or the like. But when a nerve has been evidently damaged and most certainly when it has been completely severed the after-treatment is quite as important to the restoration of its functions as is the surgical operation which seeks to remedy the local damage done. It must also be thoroughly understood that whether primary or secondary suture has been undertaken the long-continued application of these measures will be found necessary. Many months may elapse without apparent improvement. The treatment must not be abandoned. The end-result will well reward the effort. Secondary suture has been performed as late as nine, eleven and fourteen years after the receipt of the injury and marked benefit has attended the surgical treatment.

36. **Heroin Habituation.**—The authors believe that the prevalence of the habit is steadily growing, especially since there is now a greater difficulty in obtaining, without prescription, preparations containing the more active opium compounds. From the statements of their two patients there is a certain sense of stimulation and well being induced by heroin which surpasses in its delight that experienced from morphin and they assert that the habit is quite common among their associates. Apparently, judging from these two instances only, the immediate habit is broken with much less suffering and greater ease than morphinism or cocainism and the pathologic and physiologic effects are much less serious than in the more frequent habits.

Pennsylvania Medical Journal, Athens

August

40 *Subacromial Bursitis; Its Etiology, Anatomy and Pathology. A. R. Allen, Carlisle.
41 *Treatment of [illegible] T. Rugh, Philadelphia.
42 *Total Paralys [illegible] is Due to Traumatism Causing Ev [illegible] Roots of the Plexus. C. K. Mills, Philadelphia.

43 *How Sha[illegible] Treat Carcinoma of the Uterus? E. E. [illegible]
44 Infection, [illegible] W. R. Davies, Scranton.
45 *Physician and Public Health. J. M. Anders, Philadelphia.
46 *Medical Profession To-Day and Business End of It. G. D. Nutt, Williamsport.
47 Looking Backward. W. T. Davison. Canton.

40, 41 and 42. Abstracted in The Journal, Nov. 5, 1910, p. 1672.

43. **Carcinoma of Uterus.**—Montgomery emphasizes that cancer is an insidious disease, the advent of which is not discovered sufficiently early by the symptoms which are usually considered as indicating it, and that the practitioner should be on the alert for signs which will denote its appearance much earlier than those on which the profession is accustomed to depend.

45. **Physician and Public Health.**—The physician in his professional life is frequently called on to render services without full and sometimes without any compensation. Anders says he should give his best under all circumstances, for by so doing he is constantly growing in power, capacity and efficiency. Such a one, in comparison with a selfish spirit, will also in the end attract larger compensation. It has been wisely said that the man who refuses to do more than he is paid for soon becomes as small as his earning capacity. On the other hand, he who earns more than his compensation thereby makes himself greater than his salary. By rendering much service to both patients and the public, physicians in turn receive much.

46. **Medical Profession To-Day and Business End of It.**—The profession as a whole does not, in Nutt's opinion, wield the influence it should in a community, for the betterment of humanity and the eradication of superstition and quackery. If all the licensed medical men were united in one body, like other organizations that associate themselves together for mutual advantage and protection, there would not be any question of unpaid accounts or indignant feelings when bills are presented. One of the greatest means or influences that would place physicians on a firm financial basis with other learned professions in regard to their income, as well as enable them to command the respect and esteem of the public, is being more liberal and human in the treatment of each other, banding themselves together in a well-organized society, showing mutual respect for one another's interests and being willing to sacrifice self rather than a fellow practitioner. Physicians have been fighting among themselves too long: the public is too cognizant of their selfishness and petty jealousies, and in the past has used this trait or attitude of jealousy to belittle or discredit the profession.

New York Medical Journal

August 26

48 Forty-Six Years' of Medicine in New York. F. P. Foster, New York.
49 Value of Meat Broths. T. Darlington, New York.
50 Recent Corrective Tenement Legislation. H. A. Smith, New York.
51 Modern Vitalism. C. E. Woodruff, Cebu, P. I.
52 Scab Formation in the Nose. W. P. Porcher, Charleston.
53 Case of Malposition of the Liver. F. L. Hupp, Wheeling. W. Va.
54 Diagnosis of Benign Stenosis of the Pylorus and Duodenum N. Gross, New York.
55 Case of Mixed Astigmatism Presenting Symptoms of Brain Tumor. A. Bray and M. Staller, Philadelphia.

Texas State Journal of Medicine, Fort Worth

July

56 Surgical Solution of the Problem of Race Culture. M. Duggan, San Antonio, Texas.
57 *What Shall We Do For Our Tuberculous Patients? B. Cornick, San Angelo, Texas.
58 Temptations of the Local Medical Examiner in Making Life Insurance Examinations. J. E. Dildy, Lampasas, Texas.

57. **Treatment of Tuberculosis.**—Inasmuch as Nature, unassisted, slowly and gradually but surely, cures 80 per cent. of all the cases of tuberculous infections among those races in which the disease is and for ages has been most prevalent, and inasmuch as this wonderful achievement, which until recently was incredible, is the result of Nature's methods and processes of inducing immunity, the treatment of tuberculosis in Cornick's opinion should be based on these same principles. He endeavors to secure by well-proved sanatorium methods the speediest arrest of the active progress of the disease. This result he believes can be more quickly and certainly, and, in the long run, more economically accomplished at a sanatorium than at home; but for financial reasons, or for lack of adequate provision, even a three-months' sojourn at a sanatorium is as yet out of reach of many thousands of patients who must be treated at home. Then he would educate each patient along the lines of personal hygiene, sanitation and right living, so that he will not infect others, will not reinfect himself, and will know the simple program of right living best calculated to prevent a relapse, so that, with an arrest of his tuberculous process, he may reasonably hope to live out the allotted span of three score years and ten. This ideal education in right living may be taught outside of a sanatorium, but the patient will acquire it better and more quickly if he goes to school for a time in a well-conducted institution, where he may learn almost as much by association with his fellow pupils, his classmates, as from his instructor; and where his education is the more lasting, because, for a term, he himself lives the ideal life.

Medical Fortnightly, St. Louis

August 25

59 Reasons for Disinfection in Tuberculosis. T. Y. Hull, San Antonio, Texas.
60 The Supervention of Carcinoma on Site of Chronic Ulcer of the Leg. D. W. Basham, Wichita, Kan.
61 Chloroform Habit. W. F. Waugh, Chicago.
62 Specialism. D. L. Field, Jeffersonville, Ind.
63 Artificially Cooled Hospitals. C. E. Woodruff, Manila, P. I.

Archives of Pediatrics, New York

August

64 *Dietetic Management of Disorders of Gastric Digestion in Infants. A. Hand, Jr., Philadelphia.
65 *Diagnostic Value of Gastric Analysis in the Digestive Disturbances of Infancy. T. W. Clarke, Utica, N. Y.
66 Surgery of the Infant Stomach. E. B. Hodge, Philadelphia.
67 Pyloric Stenosis in Infancy. J. C. Gittings, Philadelphia.
68 Nursing Statistics Derived from the Study of the Infancy of 1,500 Children and a Contribution to the Cause of the Summer Infant Mortality. H. Schwarz, New York.
69 *Grippe on the Pacific Coast. S. Blum, San Francisco.
70 *Case of Congenital Stenosis of the Ileum Apparently of Syphilitic Origin. F. Van Der Bogert, Schenectady, N. Y.

64. **Management of Gastric Digestion in Infants.**—The percentage method checked off from time to time by the calorimetric method, is endorsed by Hand in the management of gastric digestion in infants. He gets better results with mixtures of milk, 16 per cent. cream, barley water, granulated sugar and lime water than with any other plan, so modifying the milk that the fat never exceeds 4 per cent., usually 3.5 to 3.8 per cent., rarely giving as low a protein percentage as 1 (usually starting at 1.5 or 1.8, according to age) and increasing it as rapidly as possible, using for the carbohydrates cane sugar and barley water, made from pearl barley, to total 6 per cent. He is sometimes compelled to use peptonization, which he says he likes to do for more than one or two months, classing this with low proteins and the measures mentioned earlier, which interfere with gastric digestion (great alkalinity, sodium citrate, whey, buttermilk) as having the great fault of not developing the digestive powers of the stomach. However, at times these other measures are valuable, and he has sometimes found it necessary to give whey for a time, or buttermilk (and of the two, he prefers the latter made of skimmed milk and fermented with the compressed tablets of the Bulgarian bacillus). These give the digestive organs considerable rest, and at the same time introduce enough nourishment to sustain life for a little while. They may be immediately or gradually supplanted by other mixtures; by adding cream to the whey, or fermenting the whole milk, or the feedings may be alternated.

65. **Diagnostic Value of Gastric Analysis.**—Clarke believes that a suitable test meal properly used may prove in time to be an aid of very considerable value in the treatment of certain of the digestive disturbances of infancy. Before its actual worth is proved, however, a large amount of investigation and practical application of the results on ill children will be necessary. The individual variations in the infant are far greater than in the adult and the correct interpretation of

the results is therefore proportionately more difficult. The most important features in the investigation which are to come must be uniformity, uniformity in method, uniformity in the test meal, uniformity in time and uniformity in the method of analysis.

69. **Influenza on the Pacific Coast.**—Endemic influenza on the Pacific coast, Blum says, resembles the usual type of influenza in that it is an infectious disease caused by Pfeiffer's influenza bacillus, and characterized by inflammation localized especially in the respiratory tract, and by pronounced systemic disturbances. It differs from the recognized type of influenza in two respects, (1) its mildness; (2) its more wide-spread occurrence. Clearly defined, influenza is in general a severe disease, and is accordingly regarded as serious and treated with respect and caution. On the Pacific coast endemic influenza, because of its low fever, freedom from prostration and from immediate danger, appears to be so trivial an affection that it is generally unrecognized as influenza, and, when recognized, is esteemed lightly and treated carelessly. As a result numerous cases are constantly present and widely disseminated. It is particularly common among children. Its spread is unhindered by appropriate prophylaxis. At present it is an insidious, slow-working and seemingly mild affection which, however, keeps alive and active the germ of virulent influenza.

70. **Congenital Stenosis of Ileum.**—The baby in this case was born Nov. 6, 1910, at full term. The baby's bowels moved for the first three weeks two or three times daily. At three weeks constipation was first noticed, a day or two elapsing between movements. At Christmas time the baby went three days and two nights without a movement. After three weeks there was vomiting of "brown" milk, but there was no vomiting of medicines (the medicines were probably all laxatives). Before this period there was some regurgitation of the milk in its natural state. Abdominal enlargement was noted at four weeks; the child was nursed only, and the intervals between nursing were said to be regular. In January, 1911, constipation was the symptom which alarmed the family. The abdomen was markedly distended, the abdominal wall thin, and the coils of intestine were visible on the surface. Reverse peristalsis was noted once during the examination, but never again while the child was under observation. Vomiting occurred just previous to the visit and a cloth on which the child had vomited showed a small streak of matter of a somewhat golden yellow color, resembling that of an infant stool and giving a faint but characteristic odor. This was undoubtedly fecal vomitus. The bowels were constipated, but a small plain water enema gave a fairly good result There was marked emaciation.

The baby was put in the children's ward of the Ellis Hospital where several good evacuations of the bowel were obtained through high enemata. The abdominal distention, however, continued, and the coils of the intestine were still prominently displayed on the surface. Death occurred on Jan. 14, 1911.

At autopsy a narrowing of the small intestine nearly, but not completely, closing the lumen of the bowel was found in the ileum 23 inches above the ileocecal valve. This partial obstruction was apparently congenital. The bowel above was markedly dilated, with a decided increase of the muscle tissue extending more than 2 inches above the point of obstruction. The portion of ileum below was narrow. Water poured into the bowel would slowly work its way through to the portion below. The interesting point in the case, aside from its apparent etiology, was the occurrence of fecal vomiting with apparent ability to freely evacuate the bowels, due, of course, to the fact that the liquid bowel contents could readily, but slowly, pass through the obstruction. At times, however, compensation, so to speak, was lost and a reverse action followed.

Journal of South Carolina Medical Association, Charleston

August

71 Preventive Medicine: What It Has Done and What It Can Do If State Will But Recognize Its Obligations to the Public. J. A. White, Richmond, Va.
72 Significance of Bacillus Coli in Water. F. L. Parker, Jr., Charleston.
73 Functions of the Ductless Glands. M. J. D. Dantzler, Elloree, S. C.

Monthly Cyclopedia and Medical Bulletin, Philadelphia

August

74 *Epithelial Obstructors and Conductors. R. T. Morris, New York.
75 *Diabetes Mellitus from a Surgical Standpoint. A. King, Portland, Me.
76 Manual Therapy in Some Minor Disorders. E. P. Corson-White, Philadelphia.
77 Surgical Diseases of the Stomach. L. J. Hammond, Philadelphia.

74 and 75. Abstracted in The Journal, June 3, 1911, p. 1677.

New Mexico Medical Journal, Las Cruces

August

78 Pellagra and Transfusion. J. B. Thomas, Midland, Texas.
79 Gangrene of Gall-Bladder: Report of Three Cases. H. Crouse, El Paso, Texas.
80 Significance and Management of Hemorrhage from the Nose. M. Friedman, Carlsbad, N. M.
81 Infections of the Kidneys, Pyelitis, Pyonephrosis, Pyelonephritis, Renal Abscess. C. M. Yater, Roswell, N. M.
82 *Some Experience with Guaiacol and Ichthyol as a Local Antiseptic. J. R. Gilbert, Alamogordo, N. M.
83 *Some Practical Points Relative to Rabies. F. S. Cary, El Paso, Texas.
84 Abscess of the Ear, Its Importance, Dangers, etc. W. G. Shadrach, Albuquerque, N. M.

82. **Guaiacol and Ichythol as Local Antiseptic.**—For some time Gilbert has been using a mixture containing 1 dram each of guaiacol and ichthyol to the ounce of glycerin as a local antiseptic in the treatment of infected wounds. He says his results have been excellent.

83. **Practical Points Relative to Rabies.**—The method followed at the El Paso Pasteur Institute for the cauterization of wounds is as follows: Apply hot bichlorid, 1-1,000, or boric acid solution to the bitten part, or having soaked it in the same, dry the part; then apply with a cotton wool mop so shaped as to fit the crevices of the wounds, strong carbolic acid solution; immediately take another mop and apply nitric acid, whereupon a slight explosive puff takes place; after this neutralize the nitric acid with a saturated solution of bicarbonate of soda, and wash off with alcohol, which arrests the action of the carbolic acid. Dress the wounds dry, retaining the compress in place by a bandage or adhesive plaster; in some cases collodion application may be used. If the slough or scab is sterile, as is often the case, further application to the wound should be avoided. The compress and bandages may be removed when cleanliness necessitates. The wounds should be allowed to heal under aseptic scab unless complications, i. e., infection, suppuration, etc., prevent.

Journal of Indiana State Medical Association, Fort Wayne

July

85 Cases Treated by Salvarsan. F. B. Wynn, Indianapolis.
86 Importance of Early Recognition of Internal Ear Involvement in Acute Infectious Diseases. W. H. Field, Evansville.
87 Vaccine Therapy: Principles and Practice of Immuno-Therapy. B W. Rhamy, Fort Wayne, Ind.

Medical Record, New York

August 26

88 Triumph of American Medicine in Construction of Panama Canal. J. E. Mears, Philadelphia.
89 *Fractures of the Femur. J. A. Gilbert, Portland, Ore.
90 *Adenosarcoma of the Left Kidney in a Child; Nephrectomy; Recovery. V. C. Pedersen, New York.
91 Giant Cell Sarcoma Treated Successfully by Radium. W. B. Snow, New York.
92 True Congenital Unilateral Hypertrophy. A. J. Davidson, Philadelphia.
93 Operative Treatment of Acute Appendicitis. J. B. Bissell, New York.
94 *Three Cases of Brill's Disease. L. Louria, Brooklyn, N. Y.
95 *Case of Tuberculous Meningitis. H. D. King, New Orleans, La.
96 *Case of Missed Abortion. J. Ohlbaum, New York.

89. **Fractures of Femur.**—Gilbert describes a method of treatment of fracture of the femur for which he claims originality of method and apparatus. Extension is continuous, regardless of the position of the patient; elevation of the foot of the bed is unnecessary, and the patient can be turned on the side; adhesive strips applied to the body are more comfortable than counterpressure in the groin and perineum; pain during the application of the apparatus or while wearing

it is almost *nil*, and one attendant can manage the patient. This method is well adapted to any cast for hip, body or femur.

90. **Adenosarcoma of Left Kidney in a Child.**—Pedersen presents the history of a case of adenosarcoma of the left kidney occurring in a child of three years, previously healthy. The important points in this history were the appearance of copious hemorrhages from the bladder and of pain in the left side. It was found that the urine escaped from only one ureter. Operation for removal of the kidney showed that it was an adenosarcoma. The child recovered.

94. **Brill's Disease.**—Louria is inclined to believe that this is not a new disease but a mild form of typhus fever.

95. **Tuberculous Meningitis.**—The patient whose history is is given by King suffered from nervous diseases of functional character for some years before she was taken with coma, followed by an irregular temperature which rose to 107.8 F. Lumbar puncture gave marked lymphocytosis, a positive Noguchi reaction and no tubercle bacilli. The patient suffered from cough for some time before her illness, with loss of weight and general weakness. Rigidity and Kernig's sign were present. No autopsy was allowed.

96. **Missed Abortion.**—The interesting point in this case is that the woman had been carrying a dead fetus *in utero* for probably six and a half months, without it causing her to have any physical disturbance whatsoever. Last menstrual flow occurred in May, 1910. In June, 1910, the woman began to show her usual symptoms of pregnancy, i. e., cessation of menses, which had been punctual outside of her puerperal periods, morning sickness, and the enlargement of the breasts. She consulted several physicians when her menses ceased and was told she had a pregnancy of three months or thereabouts. At about the fifth month from the time her menses ceased she commenced to look for signs of "life," which did not appear. She diagnosed her case as one of early menopause and ceased to give herself a thought about her condition. She was gaining in weight and felt comfortable. On March 12, 1911, at about 3 a. m., she commenced to have cramp-like pains and thought they were her bowels, having eaten some food the night previous which might have caused her to have a "spoiled stomach," as she called it. The pains became more severe and she decided to send for a physician. Ohlbaum was called in and reached her home at 7:30 a. m., March 12. When he got there he was shown a sac which the woman had expelled. On examination he found it contained a fetus of about three and a half months. The fetus, cord and placenta were all connected. Microscopically the placenta showed a fatty degeneration of the entire mass. The fetus was of a dirty, dark, brownish-black appearance.

Lancet-Clinic, Cincinnati

August 26

97 Certain Newer Theories on Etiology of Diabetes Mellitus and Its Treatment. L. G. Heyn, Cincinnati.
98 Chronic Pancreatitis, with Reference to the Present Status of the Cammidge Reaction. J. H. Schroeder, Cincinnati.
99 Some Considerations of the Risk in Life Insurance Examinations, with Special Reference to Tuberculosis. C. L. Wheaton, Chicago.

Vermont Medical Monthly, Burlington

August 15

100 Diagnosis and Prognosis of Valvular Lesions of the Heart. C. H. Beecher, Burlington, Vt.
101 Diabetes. W. C. Abbott, Chicago.
102 Cosmetic Surgery. C. M. Cobb, Boston.
103 Extrauterine Pregnancy. R. H. Seelye, Springfield, Mass.

Canadian Medical Association Journal, Toronto

August

104 A Chronic Cholera Carrier. J. G. Adami, Montreal, A. Vallee, Quebec, and G. E. Martineau, Grosse Isle.
105 *Typhoid Bacillus Carriers. J. C. Meakins, Quebec.
106 *Infant Mortality in Canada. C. A. Hodgetts, Ottawa.
107 *Typhoid at Ottawa. L. Drum, Ottawa.
108 *Fort William Epidemic of Typhoid in 1906. F. C. Douglas, London.
109 Local Typhoid Epidemic at Murray Bay, P. Q. C. K. P. Henry, Murray Bay.

105. **Typhoid Bacillus Carriers.**—In view of the frequency of typhoid carriers, the difficulty of cure, and the great danger they are to the public health, Meakins urges that every means should be employed for their recognition, prevention and isolation. The task of recognition of transitory carriers falls to the general hospitals, where over 50 per cent. of the cases of typhoid are treated. Every case, before discharge, should be examined thoroughly bacteriologically, and should be kept in the hospital or under strict observation and be treated by homologous vaccines until the excreta are free of typhoid bacilli beyond peradventure. If they could be reexamined six to twelve months afterwards, especially the adult women patients, much would be gained. Search for the source of infection in every case of typhoid, and the district physician should be informed when a known carrier is in his jurisdiction, so that he can keep him under supervision. Those patients who are not treated in the hospitals should be strictly watched and frequently examined by a special department of the board of health.

Germany has dealt with this question in a masterful way. In the southwestern part of the empire typhoid fever is largely endemic. On the recommendation of Koch, stations were established in this district under the municipal government. Each laboratory was well supplied with skilled bacteriologists, who worked in conjunction with the local authorities. Their duties were fourfold—to diagnose typhoid, to ascertain the source of infection in each case and to examine for infected persons, to supervise and regulate the general hygiene of the district, and to make bacteriologic examinations of stools and urine, in order to determine when convalescents cease eliminating typhoid bacilli. By their work they have made great strides in the prevention of typhoid, more especially as regards the typhoid carrier. As there is no other source for malarial infection than mankind, so it is with typhoid, which practically means that if we can prevent, cure or render innocuous the typhoid carrier, we can get rid of typhoid, but not until this has been accomplished.

106. **Infantile Mortality in Canada.**—From the figures given by Hodgetts and the comparisons made, it is quite evident that the infant mortality rate (12 in 100) is not what it should be. It is much too high for a country so sparsely populated, where poverty in its severe forms is non-existent, and the figures quoted carry the conviction that there is a wanton destruction of this item of national resources. Why should the general, infant death-rate be so high, asks Hodgett, when there are not the many social and sanitary problems staring people in the face as have the nations of Europe, and even the United States? Poverty is there, but not to the same alarming extent; unsanitary housing conditions are to be met with, but are not so apparent. The cities are, on the whole, healthy; drainage is good, although in regard to water-supplies and sewage disposal, Hodgetts says, they have yet much to do. Milk-supplies are only fair; that there is room for improvement is shown by the movement being made for improvement is shown by the movement being made for "pure milk." The people, as a race, are fairly healthy; and the climate is looked on as that best suited for an active, vigorous manhood and womanhood.

Hodgetts suggests that the trouble begins in the antenatal period of infant life; that the slaughter of the innocents continues from birth onward, is in evidence; and that much of this wanton destruction could be prevented, is more than certain. In civil law, ignorance is no excuse; how much greater then is the sin of the parents when it must be pleaded that they were ignorant of their duties and responsibilities to their offspring, with the result that the little ones died prematurely. Ignorance of parental duties is a great and growing evil, one which must be met by a better and broader education in all that relates to the child and child life. Young women must be taught the duties of motherhood; young men, the responsibilities of fatherhood; the municipality, the duties it owes to the child in providing for clean housing as well as for proper housing accommodation, pure milk-supplies, and, by civil enactment, seeing that the environment of the mother and child shall be of the best. The state, too, must move along lines which it has already done to improve livestock, to foster our agricultural wealth, spending money for the purpose.

107. **Typhoid at Ottawa.**—Drum concludes that this epidemic was due solely to the infected water-supply. Of course, there were some cases due to contact, and secondary infection through food, but the original and continuing factor was the water-supply.

108. **Fort William Epidemic of Typhoid in 1906.**—The causes of this epidemic are summed up by Douglas as remote and immediate. The remote included: 1. Presence of numerous endemic cases without report of same to the authorities. 2. Systematic pollution of soil and general unsanitary condition of the whole place. 3. Contamination of the water-supply with sewage. The immediate cause was a specific contamination from three main sources: 1. Forde Street sewer, 1,400 feet above the intake, two cases of typhoid. 2. Town pumping-house, four cases of typhoid. 3. Foreign section, 1½ miles above the intake, six cases.

Journal of Minnesota State Medical Association and Northwestern Lancet, Minneapolis

August 15

110 *Cerebrospinal Syphilis. W. C. Nichols, Fargo, N. D.
111 *Syphilis, With Reference to Recent Advances in Diagnosis and Treatment. J. M. Armstrong, St. Paul.
112 Present Status of Serum-Therapy. P. R. Burkland, Vermilion, S. D.

110 and 111. Abstracted in THE JOURNAL, July 8, 1911, p. 58.

Woman's Medical Journal, Cincinnati

August

113 Dementia Præcox. M. K. Isham, Columbus, O.
114 Points for Consideration in Determining a Fit Public Water-Supply. M. Macmillan, New York.
115 Streets and Sewers and the Disposal of City Wastes. H. D. Parsons, New York.
116 Hygiene of Streets. J. J. Cronin, Chicago.

Buffalo Medical Journal

August

117 Latent Sinusitis. G. F. Cott, Buffalo.
118 *Colds, Their Causes and Treatment. S. F. Snow, Syracuse, N. Y.
119 Treatment of Syphilis. W. W. Quinton, Buffalo.
120 Three Years with the Army of the Potomac. W. W. Potter, Buffalo.

118. **Causes and Treatment of Colds.**—It is Snow's practice to give a medium dose of castor oil or salines between the doses of calomel, if the auto-intoxication is persistent or active and calomel has been used, the aim being of course to prevent cumulative effects from the mercurial. He has used a pill composed of blue mass, colocynth compound, strychnin sulphate and belladonna for ten years, with not one instance of mercurial poisoning, nor one instance tending to show that a constipated habit has been induced. Such a drug combination does not, he says, require an after-flushing with salines, and is sufficiently effective, except in extreme or obstinate cases in which nothing acts so well as calomel.

Maryland Medical Journal, Baltimore

August

121 Pregnancy Complicated by Heart and Kidney Disease, with Special Reference to the Treatment of Severe Cases. E. H. Kloman.
122 Stereopticon Lesson in Sex Hygiene. M. Fairchild, Baltimore.
123 Sewage and Sewage Disposal. C. W. G. Rohrer, Baltimore.

Louisville Monthly Journal of Medicine and Surgery, Louisville

August

124 Sacro-Iliac Strain, With Report of a Case of Sciatica. J. J. Moren, Louisville.
125 Ruptured Duodenal Ulcer. J. G. Sherrill, Louisville.
126 Tubal Pregnancy Twice Within a Year in Same Patient. L.
127 Ray, Louisville.
128 . M. Vance, Louisville.
129 ce.
130
131 Permanent Hemianopsia in Patient Long Subject to Migraine With Temporary Hemianopsia. S. G. Dabney, Louisville.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

August

132 What Every Physician Should Know of Ophthalmology. H. D. Bruns, New Orleans, La.
133 Use of Antiformin in Examining Serous Pleural Effusions for B. Tuberculosis. W. Allan, Charlotte, N. C.
134 Pyloric Stenosis. A. M. Willis and J. M. Hutcheson, Richmond.
135 Surgery of Gall-Bladder. H. Norris, Rutherfordton, N. C.
136 Acute Pancreatitis. P. L. Gibbon, Charlotte, N. C.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

August 19

1 The Surgeon and Industrial Worker. W. D. Spanton.
2 *Afferent Fibers in Ventral Spinal Roots. L. J. Kidd.
3 Pancreatic Cyst: Rupture: Recovery. H. Walker.
4 An Intracellular Stage in Development of Trypanosoma Lewisi in the Rat-Flea. E. A. Minchin and J. D. Thomson.

2. **Afferent Fibers in Ventral Spinal Roots.**—Kidd has collected a large amount of evidence, surgical, experimental, histologic and embryologic, which leads him to the inevitable conclusion that afferent fibers, in some cases algetic, in others reflex, exist in the spinal ventral roots of man and many other vertebrates. In his opinion, we ought to divide ventral as well as dorsal roots in cases of intractable pain, except in the case of the third and fourth cervical ventral roots; here division would cause motor palsy of the diaphragm on the side of section; but, unilateral phrenic palsy in man and laboratory animals does not usually cause danger to life. It is, of course, true that ventral root division for pain would always cause some motor palsy, but the patient would probably almost always prefer this disability to a continuance of his pain. The fact that in some cases dorsal root division does abolish all pain suggests that it may be only in some regions of the spinal cord that any afferent fibers pass up ventral roots to their endoneural ganglionic groups of cells.

Certain experiments suggest to Kidd in the clearest manner that the ventral cervical roots of the pigeon, and the ventral roots of the cauda equina of the dog, contain afferent fibers which supply the reflex component of the muscle tonus of the wing muscles and the tail muscles, respectively. The origin of these ventral root afferents in the spinal cord region, whether cervical (pigeon), thoracic and lumbosacral (man), or sacrococcygeal (dog), is entirely from endoneural afferent ganglionic cells, situated, Kidd believes, in (1) the smaller cells of Clarke's column, (2) the solitary cells of the dorsal horn, (3) some of the "middle cells" of the cord, and possibly also (4) some of the cells of the nucleus cuneatus of the bulb. Kidd denies that any motor cells exist in (1) tectum mesencephali, (2) locus coeruleus, (3) Deiter's nucleus, (4) dorsal vago-glosso-pharyngeal nucleus (ganglion), or (5) in any of the four spinal dorsal-zone cell groups mentioned. Since all these parts are developed in the dorsal zone of the embryonic brain or cord (the alar lamina of His), and since, further, there is no instance known in any vertebrate of motor fibers rising in cells derived from the alar lamina, Kidd holds that it is nothing less than a morphologic outrage to teach that any of these cell-groups give origin to motor fibers.

Lancet, London

August 19

5 Housing and Town Planning. F. E. Fremantle.
6 *Hereditary Tendency Toward Twin-Bearing, and the Influences Aiding in the Determination of Sex. J. Oliver.
7 Discrimination of Color. F. W. Edridge-Green.
8 Pathologic Relationship Between the Appendix and the Uterine Adnexa. J. Birt.
9 *Meningitis Following Measles. C. A. Basker.
10 Convenient Method to Test the Visual Fields for Color Without Use of a Perimeter. T. A. Williams.

6. **Hereditary Tendency Toward Twin-Bearing.**—Twenty-four patients out of every 2,500 that Oliver has seen have once or oftener given birth to twins, a proportion, that is, of about 1 in 104; therefore he is convinced of the existence of an hereditary tendency toward twin-bearing. In three only of these patients was there no history of twins either on the female or the male side, and in one or more of those it is quite possible that the default may have been due to ignorance. In this group there are twenty-eight sets of twins, as one patient has borne twins three times and two others had each had twins twice. The twins in thirteen instances are boy and girl, in twelve they are two girls, and only in three are they two boys. The aforesaid twenty-eight confinements produced altogether thirty-seven females and nineteen males, a proportion, that is, of practically two females to one male; and this, Oliver says, is fairly constantly the relationship of female to male births as a result of twin conceptions. This is a noteworthy *phenomenon*, since in all European countries,

whether the legitimate and illegitimate births be computed separately or together, the total annual number of male births always exceeds that of females, and this has been a constant revelation year after year in northern and southern countries alike. In England and Wales the total male and female births during the year 1907 were, respectively, 467,728 and 450,314, or proportionally 103 or 104 males to every 100 females. In countries, however, where polygamy prevails this relationship of male to female births is reversed, for polygamy produces about two female births to every one male. This relationship corresponds closely with that noted as a result of twin conceptions.

Judging from his own clinical facts and experience Oliver is convinced that the production of twins in the human female is not a chance affair, and has nothing to do with the deficiency of lime or potash or soda salts in the blood or generative tissues of the mother, for it is well known that deficiency of these salts so alters the sensitivity and irritability of the Fallopian tubes and uterus that well-marked symptoms make their appearance therefrom and abortion is apt to ensue. If, therefore, twin productions were in any way associated with deficiency in the amount of calcium, or potassium, or sodium in the maternal blood, twin productions would more commonly result in abortions than they do.

9. **Meningitis Following Measles.**—During the first half of this year, when an epidemic of an unusually severe form of measles was prevalent, six children suffering from meningitis were admitted into Addenbrooke's Hospital. In one of the patients the disease was primarily pneumococcic. The other five had symptoms of post-basic meningitis. In three of these the cerebral symptoms followed measles, one a week, one six weeks, and one eight weeks after the rash had been seen. In all five the onset of the disease was sudden; most of the patients vomited and rapidly lost consciousness, and retraction of the head and Kernig's sign were well marked. The temperature was usually not above 101 F., and the pulse and respirations were irregular. In three cases improvement followed and seemed to be due to lumbar puncture. One patient recovered completely, and though meningitis was diagnosed it was not proved, as an examination of the cerebrospinal fluid was sterile and showed no excess of cells. The other four patients died and their brains were examined, and all showed a meningitis alike in appearance. There was a greenish-yellow exudation of lymph into the pia-arachnoid membrane at the base of the brain with more fluid than usual in the ventricles. In the cerebrospinal fluid of one patient (who had not had measles recently) the meningococcus of Weichselbaum was found, and in another diplococci were seen in the exuded lymph at the base of the brain. On account of the similarity of the clinical course of the disease and of the appearance of the brains after death, Birt suggests that it is not improbable that the meningococcus was responsible for the meningitis in all the cases. Whether the measles disposed to, or whether it was accidentally followed by, the meningitis is uncertain, but in either case the occurrence of nervous symptoms after measles is interesting on account of its rarity.

Australian Medical Journal, Melbourne.

July 21

11 Diagnosis of Nephrolithiasis. J. Smith.
12 Id. F. D. Bird.
13 Modern Midwifery. A. A. Lendon.

Australasian Medical Gazette, Sydney

July 20

14 South Australian Branch of the British Medical Association. W. T. Hayward.
15 *Sprue and [illegible] C. C. Macdonald.
16 The Method [illegible] bdomen. T. Flaschi.
17 *New Metho[illegible] W. T. Chenhall.
18 Case of Acu[illegible] T. H. May.
19 Obstetrics in the Lady B[illegible] ks.
20 Ten Years' Experience o[illegible] B. Korff.
21 Smith's Operation for [illegible] in Capsule; Report of 253 Cases.
22 Case of Pyonephrosis Complicating Puerperium, Operation, Specimen. R. Worrall.
23 *Appendix Open at Two Ends. A. L. McLean.

15. **Sprue and Ankyiostomiasis.**—The treatment practiced by Macdonald in cases of sprue for many years with marked success consists in the administration of fairly large doses of chlorate of potash at frequent intervals and continued for a considerable period, and treating the diarrhea and dyspepsia by carbonate of bismuth and sulphate of morphin or oxybromid of bismuth. He recommends the following: Chlorate of potash, 1 oz.; water to 12 oz., 1 tablespoonful every four hours after shaking the bottle. The potash does not dissolve in this proportion, but Macdonald thinks there is an advantage in giving some of the undissolved salt in each dose. For the dyspepsia and diarrhea he recommends the following:

℞	Gm. or c.c.		
Bismuthi carbonatis	16		ʒiv
Liquoris morphinæ sulphatis	12	or	ʒiij
Glycerini	16		ʒiv
Aquæ ....q.s. ad	120		℥iv.

M. et Sig.—One dessertspoonful three times daily in water.

This mixture seems to speedily check the diarrhea, and should be then given twice daily, and later at night only until the stools become formed. If the bowels become constipated some aperient pill with blue pill is most suitable. In Macdonald's opinion castor oil and the salines are contra-indicated, as they sometimes cause serious relapses and seem to irritate. The whole treatment can be stopped for a week or so if the case progresses well. Slight relapses are sure to occur, but with continued treatment the relapses get less and less, until complete convalescence is established. Experience has taught Macdonald that a fairly liberal diet can safely be ordered in conjunction with the above treatment. Milk puddings, eggs, soup, bread and butter, underdone meat and white meat, etc., can be given.

17. **New Operation for Hemorrhoids.**—In Chenhall's method each pile is grasped in a pair of long, light, slightly-curved forceps, care being exercised to close the blades just within the mucocutaneous margin and their points on the main vessel in the pedicle above. By drawing the forceps handles toward the lumen of the bowel, the mucocutaneous junction is rendered tense and is divided by a clean-cut knife incision immediately behind the forceps blades to the depth of half an inch. A fine, round, curved needle, threaded with No. 1 plain catgut, is now passed through both sides nearly the full depth of the incision, which is then closed in a direction parallel to the length of the bowel. This suture, when tied, serves as a tractor. Separating the tractor and forceps, the mucous membrane, now rendered tense, is divided by the knife on each side behind the forceps blades. The submucous tissues are carefully raised or divided. The next suture is now inserted. Transfixion of even small veins is easily avoided in passing the sutures, since the floor of the small wound is exposed. This cannot be claimed when sutures are passed through tissues gripped by forceps. Ligature may be, but is rarely, necessary for any vessels. Using, in succession, each suture as a gentle tractor the same procedure is repeated until the upper part of the pedicle is reached. This, which contains the main vessel, is ligatured with No. 2 catgut, divided, tucked down and buried in the end of the incision by a small catgut suture, which closes the upper end of the wound, passing in transit through the end of the incision and the pedicle ligature is rendered additionally secure. This is most important. A long line carrying tied sutures marks the site of the original pile. There is practically no bleeding, and postoperative pain is so slight that sedatives are rarely necessary after the first hypodermic of morphia. Chenhall emphasizes that it is important that sutures be not tied unduly tight. Suppositories should never be used, a dry, sterile dressing pad being the only dressing required. The bowels, carefully prepared before operation, should be allowed to rest until the fourth or fifth day.

23. **Appendix Open at Two Ends.**—The patient, female, aged 28 years, had acute pain and tenderness in the right side. There was no vomiting, but constipation was marked. Since then similar attacks, slighter in character but never with vomiting, have occurred. She noticed at the first attack that she limped with her right leg when walking, and this action relieved the pain. Since her marriage, two years ago, she had a good deal of pain in both iliac fossæ. On abdominal section there was a condition of double salpingitis. The appendix was near the brim of the pelvis, bound down by adhesions to the cecum and adjoining portion of the small

intestine (lower end of the ileum. On separation of the superficial adhesions there was found a hard cord-like adhesion joining the appendix at a point ½ inch from its tip with the ileum. This was inseparable by digital manipulation, and on being cut through was found to enclose the lumen of a short canal which gave access from the appendix to the ileum. The proximal end of the appendix was patent into the cecum, and within the former was a small, hard fecal concretion. The condition evidently pointed to a preexisting appendiceal abscess which had burst into the small intestine, though the previous history scarcely conformed to such an occurrence in severity of symptoms.

Medical Press and Circular, London

August 9

24 Diabetic Polyneuritis. Claude.
25 The Ritual and Growth of Surgery. J. Lloyd.
26 Merits of a Relatively Low Protein Diet. C. Watson.
27 Results of Prostatectomy. H. H. Young.

August 16

28 Action of Placental Serum on Cancer. Kraus and Graff.
29 Case of Pruritus Vulva. J. G. Tomkinson.
30 *Are Pellagra and Sprue One and the Same Disease? J. Burnet.
31 Mental Symptoms in Choreiform Disorders. E. Mapother.
32 Present Status of Radium Therapy. W. H. B. Aikins and F. C. Harrison.

30. **Pellagra and Sprue.**—Both pellagra and sprue are afebrile diseases. In both there are emaciation, loss of weight and general malnutrition as later symptoms. The most striking fact, however, is that cases of pellagra may not show any skin manifestations for a very long time, the only evidence present being a persistent and chronic diarrhea, which so closely resembles sprue that one cannot overlook this similarity. Burnet is convinced that the two diseases are one and the same.

Clinical Journal, London

August 9

33 Insomnia. R. Hutchison.
34 Racial Evolution of the British People; Its Importance in Pathology and Therapeutics. J. S. Mackintosh.

August 16

35 Intestinal Fistula. H. M. Rigby.
36 Limitations to the Successful Employment of Salicylates in Rheumatic Affections. A. F. Voelcker.

Bulletin de l'Académie de Médecine, Paris

July 4, LXXV, No. 27, pp. 1-44

37 Experiences with Spinal Anesthesia. (Contribution à l'étude de la rachinovocainisation lombaire.) E. Forgue and V. Riche.

Berliner klinische Wochenschrift

August 7, XLVIII, No. 32, pp. 1453-1496

38 *Surgery of Hypophysis Cerebri. E. Melchior.
39 Action of Pituitrin on Uterine Contractions. R. Stern.
40 Pituitrin in Obstetrics. O. Bondy.
41 *Wassermann Reaction and Experimental Syphilis. (Experimentelle Kaninchensyphilis.) F. Blumenthal.
42 Effect of Atophan on Excretion of Uric Acid. (Angriffspunkt des Atophans bei seiner Einwirkung auf die Harnsäureausscheidung.) E. Frank and B. Bauch.
43 Action of Hydrogen Peroxid on Enzyme Production. (Einwirkung von Wasserstoffsuperoxyd auf das enzymproduzierende Vermögen der Schleimhaut und auf die ausgeschiedenen Enzyme.) A. Marcuse.
44 New Method of Examining the Pupil of the Eye. (Nebst Beitrag zur Frage der Konvergenzreaktion und Mitteilung einiger wenig bekannter Phänomene am Auge.) S. Goldflam.
45 *Collateral Circulation of the Kidney. E. G. Liek.

August 14, No. 33, pp. 1497-1540

46 *Pyonephritis and [illegible] Cohn.
47 *End Results of [illegible]
48 Diverticula of A[illegible] des Wurmfortsatzes.) W. V. Simon.
49 Sugar Metabolism in Addison's Disease. H. Schirokauer.
50 Feeding with Artificial Mother's Milk. H. Friedenthal.
51 Vaccinotherapy. G. Wolfsohn.
52 Uzara; a New Antidiarrheic. C. Bachem.
53 Overcorrection in Spastic Contraction. S. Peltesohn.
54 Roentgen-Rays and Sterility. H. E. Schmidt.

38. **Surgery of Hypophysis Cerebri.**—What is known of the surgery of the hypophysis as well as of the functions of this gland is presented in review by Melchior. He emphasizes the excellent clinical results that are obtained from operation, but insists that an early operation in suitable cases offers the only hope of giving the patient relief or of effecting a cure. The headache and the visual disturbances are regarded as a sufficient indication for the immediate performance of the operation

41. **Wassermann Reaction and Experimental Syphilis.**—The Wassermann reaction was sought for 107 times in fifty-five rabbits. The results were always negative. Fifty-four rabbits were infected with syphilis, fourteen through the anterior chamber of the eye and forty-two scrotally. Irrespective of the clinical history of these cases the test was negative. Twenty-five animals were infected by intravenous or intracardial injections; ten presented symptoms of general syphilis. The reaction was positive five times. In two of the animals the reaction was not accompanied by evidence of clinical symptoms. The reaction was obtained as early as the sixth week, but on the average not until the eighth week. The author concludes that his experiments show that a positive Wassermann may be obtained in cases of general infection.

45. **Collateral Circulation of Kidney.**—Liek is convinced that it is impossible to establish a collateral circulation in the kidney by means of decapsulation or otherwise which will equal the normal circulation through the renal artery. He warns against the use of this procedure in the treatment of cases of chronic nephritis.

46. **Actinomycosis of Genito-Urinary Tract.**—Cohn presents the case of a man who, fifteen years previously, was suddenly beset with vesical tenesmus and during this time voided urine containing both pus and blood. The symptoms slowly diminished in severity and after a few years disappeared almost entirely, although the pyuria and hematuria continued. For the past four years there have been present painful urination and dribbling of urine. The patient was pale and very much emaciated. The prostate was enlarged and was believed to be the seat of a purulent inflammation. Cystoscopy did not throw any light on the clinical history of the case. The interior of the bladder was negative. It was concluded, therefore, that while some of the pus might have come from the prostate, the large amount of pus in the urine pointed to a renal involvement to which the bladder inflamma[illegible] secondary. Tubercle bacilli were not found in the p[illegible] fluid nor in the urine but the actinomyces was pres[illegible] large numbers and was successfully cultivated. It was i[illegible] to ascertain the source and method of infection, a[illegible] the patient had worked with cereals and had often slept on straw and hay; he could not recall any injury which might have served as an infection atrium.

47. **End Results of Prostatectomy.**—Casper reports the end results of fifty-four cases of prostatectomy done by him. Reports were received from twenty-six patients as to the condition of the bladder. These patients were operated on two to five years previously and none of them has any difficulty in urination, neither is there any pain. In 95 per cent. of his cases there was cystitis; 75 per cent. of these patients have been freed from this trouble entirely. In all cases in which the renal function was unimpaired before the operation, it remained unchanged after the operation and inasmuch as Casper does not operate unless the function of the kidneys is normal, no kidney disturbances occurred after these prostatectomies. In three cases the patients complained of severe lancinating pains in one or both legs. They resembled the pain of sciatica but disappeared about five months after the operation. Casper suggests that the pain was probably the result of the unavoidable injury done to the nerves of the hypogastric plexus during the operation. In those cases in which the prostatectomy was done because of severe hemorrhages from the prostate, further bleeding was not noted after the operation. In none of the cases was there a recurrence of the original trouble. Naturally, Casper favors operation when it is indicated.

Deutsche medizinische Wochenschrift, Berlin

July 27, XXXVII, No. 30, pp. 1377-1424

55 Senile Processes in Central Nervous System. (Alterserkrankungen.) W. Spielmeyer.
56 Physiologic Pathology of Bechterew-Strümpel's Disease, (Chronic Ankylosis of Spine). J. Plesch.
57 Local Anesthesia in Trigeminal Region. H. Braun.
58 Cause and Prevention of Apical Pulmonary Tuberculosis. (Entstehung und Verhütung der Lungenspitzentuberkulose.) Bacmeister.
59 Tuberculosis of Genital and Uropoëtic System of Female. A. Sippel.
60 *Therapy of Gastric Hyperacidity. H. Winternitz.

61 *Roen[illegible]nologic Determination of Gastric Hyperacidity. (Eine Azi[illegible]ätsbestimmung des Mageninhalts mittels des Röntgen[illegible]fahrens.) E. Schlesinger.
62 Oper[illegible]e Treatment of Hay Fever. (Doppelseitige Resektion [illegible]N. ethmoidalis anterior.) T. Albrecht.

August 3, No. 31, pp. 1425-1464

63 [illegible]eristalsis of Colon. (Röntgenbeobachtungen.) G. v. Bergmann and E. Lenz.
64 [illegible]paratus for Registering Heart Tones Photographically. R. [illegible]m.
65 Se[illegible] Processes in Central Nervous System. W. Spielmeyer.
66 Case of Rupture of Longitudinal Sinus. Wieting.
67 Errors in Serodiagnosis of Echinococcosis. A. Brauer.
68 Case of Reinfection with Syphilis after Salvarsan Treatment. R. Krefting.
69 Angina Ulcerosa in Tanger Fever. M. Steiner.

August 10, No. 32, pp. 1465-1504

70 Heredity of Disease. F. Pick.
71 Chronic Poisoning, Especially with Lead. W. Straub.
72 *Cholera Vibrios and Hemolysis. R. Kraus, D. A. L. Graham and Z. Zia.
73 Treatment of Acute Suppurative Nephritis. (Ueber Bakteriensteine im Nierenbecken, zugleich zur Behandlung der akuten, eitrigen Nephritis.) A. Neumann.
74 *Acetylsalicylic Acid for Cough. W. Ebstein.
75 Serodiagnosis of Tuberculosis and Syphilis by Means of Viscosimeter. K. Csépai and A. v. Torday.
76 *Treatment of Carcinoma of Uterus with Radium Rays. E. Arendt.
77 *Phenolphthalein Blood Test. P. A. Kober.
78 Wassermann Reaction in Examination of Prostitutes. W. H. Dreuw.

60. **Hydrogen Peroxid in Hyperacidity.**—According to Winternitz, solutions of hydrogen peroxid, even in very slight concentration, reduce gastric acidity but not for any great length of time. He has therefore abandoned this method of treatment and has returned to the use of alkalies.

61. **Determining Gastric Acidity by Means of Roentgen Rays.**—In the procedure adopted by Schlesinger, the patient is fed bismuth mush in any desired form and there is then noted the size of the so-called magenblase or stomach bubble and the rapidity with which the bismuth mush is digested. A roentogram is taken as soon as the bismuth mush enters the stomach. Another picture is taken one hour later. The patient is then urged to drink several ounces of water, containing 10 per cent. of sodium. Two minutes afterward another roentogram is made. This second picture shows a distinct enlargement of the magenblase which is the important part of the procedure. The difference in the size of the magenblase in the first and second pictures shows the amount of CO_2 liberated from the sodium and furnishes the means of estimating the acidity of the gastric contents. The greater the amount of CO_2 the greater is the acidity.

72. **Toxicity of Cholera Vibros.**—The authors ascertained that all of the strains of cholera vibrios obtained during various epidemics occurring in the past three years did not produce any hemotoxins. If, however, organisms grown on blood-serum are used, hemolytic vibrios are produced; therefore methods of culture are recommended for differential purposes; that is, organisms grown in ordinary bouillon media are not hemolytic, whereas blood-serum cultures are hemolytic.

74. **Acetylsalicylic Acid for Cough.**—To allay distressing cough Ebstein gives acetylsalicylic acid. He reports several cases in which only good effects were obtained from this medication. One patient failed to get any relief from the use of codein; Acetylsalicylic acid gave immediate relief. Ebstein says that it not only gives relief but it effects a cure, besides materially shortening the duration of the illness.

76. **Radium Therapy in Carcinoma.**—Arendt recommends radium therapy in those cases in which a radical operation is, beyond question, hopeless, and to prevent recurrence. In the so-called inoperable cases, however, he would remove as much of the carcinoma as possible before resorting to radium therapy. He emphasizes the necessity for circumspection and caution in the use of the radium. Of eighteen cases, ten patients died, eight are living and are now being treated by Arendt. Six of these are in good condition, two are nearing death, three of the patients are following their occupations, the remaining three having the appearance of well persons. In eight cases a complete hysterectomy was performed, four patients had a recurrence. Only one patient of four subjected to radium treatment has had a recurrence. Therefore, Arendt is a firm believer in the use of radium to prevent recurrence after radical operations undertaken to remove a carcinomatous uterus.

77. **Phenolphthalein Blood Test.**—Kober is of the opinion that this test should not be accepted as a positive one, because both positive and negative results are open to question of doubt. He would not use either Meyer's or Fleig's reagent to test for blood.

Zeitschrift für Kinderheilkunde, Berlin

II, No. 6, pp. 437-548. Last indexed July 29, p. 435

79 Methods for [illegible] on Metabolism of Salt in Infants. [illegible] zur Methodik der Erforschung des [illegible] Säuglings.) B. Salge.
80 Experiences [illegible] (Erfahrungen mit Eiweissmilch.) P. Grosser.
81 Analysis of "Albumin Milk." H. Pelka.
82 *Urobilinuria with Measles. (Urobilinurie bei Masern.) E Rach and A. von Reuss.
83 Infant Feeding with Little Sugar and Much Fat. (Zur Frage der zuckerarmen und fettreichen Ernährung.) I. Rosenstern.
84 Non-Gonorr[illegible]torum. (Ueber nichtgonorrhoisc[illegible] L. Halberstaedter.
85 *Mumps in [illegible] of the Auditory Nerve and Labyrinth. ([illegible]l Labyrintherkrankungen z[illegible]ke.
86 Elimination of [illegible]ur Zuckerausscheidung im [illegible]
87 *The Cutaneous [illegible]jewski.
88 *Th[illegible] in Relation to Tetany in Infants. [illegible] die Epithelkörperchen mit bes. [illegible]ziehungen zur Säuglingstetanie.)

82. **Urobilinuria in Measles.**—Rach and Reuss found urobilinuria in the course of measles in all but four of fifty-one cases, that is, in 92 per cent., but frequently it was slight and transient. It rarely lasted more than a few days and was usually mild, never reaching the intensity of the urobilinuria in scarlet fever. When the urobilinuria was protracted there was always some complication justifying the assumption of insufficiency of the liver. The direct complications of measles did not seem to affect the urobilinuria. It was never observed until toward the end of the eruption phase.

85. **Mumps and the Ear.**—Haike reports the case of a young man of 19 who became suddenly deaf after a few days of malaise and slight fever but no local pain or vertigo. The other features of the case suggested mischief in the labyrinth, and three days later bilateral orchitis developed with high fever and much depression, the young man losing 20 pounds in the course of a month. The mumps seemed to have affected the internal ear first, and permanent deafness has resulted. There was no involvement of the parotid at any time. Gradenigo has reported a somewhat similar case in a boy under 5 years old whose smaller brother had mumps. The older had pains and swelling in the testicles but these subsided under cold applications. The next day sudden deafness developed and was permanent. There were no symptoms on the part of the parotid at any time. In Haike's case there was no known chance for contagion with mumps in the town, but he thinks it should be classed as "epidemic parotitis without parotitis," and believes that this assumption will explain other cases of sudden, bilateral deafness in children, usually accompanied by some mental disturbance at first such as may accompany mumps.

87. **The Cutaneous Tuberculin Reaction.**—Radziejewski writes from the children's clinic at Breslau in charge of von Pirquet to relate the findings at necropsy as compared with the cutaneous tuberculin reaction during life in thirty-nine cases reported in detail and in 327 others. All the data confirm the specific importance of the reaction, and that a negative reaction—in the absence of cachexia, miliary tuberculosis and meningitis—excludes tuberculosis with almost certainty. A positive reaction in infants is almost inevitably of evil prognosis as the active process generally proves fatal and the tuberculous process is never inactive in infants.

88. **The Parathyroids and Tetany.**—Bliss was not able to detect any special connection between hemorrhagic changes in the parathyroids and tetany in children. He examined with the microscope the parathyroids in thirty-five child cadavers from a few months to nine years old, finding them normal in a number of cases and with hemorrhagic changes in others, but with no parallel connection with the convulsions observed in some of the children during life.

Zeitschrift für Urologie, Berlin

July, V, No. 7, pp. 497-584

89 *Litholapaxy. (145 Litholapaxien.) M. Kreps.
90 *Syphilis of the Bladder. (Die syphilitischen Erkrankungen der Harnblase.) P. Asch.
91 *Tardy Hemorrhage after Nephrotomy. H. G. Pleschner.

89. **Litholapaxy.**—Kreps reviews 145 cases in which he crushed and removed by suction one or more stones in the bladder. Only eight of the patients were females; the ages ranged from 8 to 82 years. He calls attention to the efficacy of long-continued pressure in breaking up even very hard stones. The long pressure changes the *molecular structure* of the stone, so that it crumbles when at first it seemed impossible to produce any impression on it. Even a few minutes' longer pressure may accomplish the desired result. One of his patients was an unmarried woman of 26 who ceased menstruating and the abdomen increased remarkably in size. A pregnancy was assumed but the trouble proved to be a soft phosphate stone entirely filling the bladder and distending it to simulate the pregnant uterus. After the litholapaxy menstruation returned, the patient married and a normal pregnancy followed.

90. **Syphilitic Lesions in the Bladder.**—Asch has encountered three cases of true bladder syphilis and a large number of parasyphilitic bladder affections in the last twelve years, and he compares these experiences with the literature on the subject. The bladder is usually affected, if at all, during the third phase of syphilis. These syphilitic affections of the bladder seldom have a specific aspect and their true nature may be unsuspected. Gummas often simulate papillomas and he suggests that it is wise to examine for syphilis in every case of papilloma of the bladder. Gummatous growths cause manifestations like those from any neoplasm, except that they are liable to induce considerable hemorrhage; the hematuria is distinguished by its continuance from beginning to end of the urination, while with ulcer, even the syphilitic, the hemorrhage is more terminal. Treatment should be the general specific treatment without local measures. General treatment is liable to induce pronounced benefit in tabetic bladder disturbances. Asch cites forty-three recent publications on the subject of syphilis of the bladder.

91. **Hemorrhage After Nephrotomy.**—In the three cases reported by Pleschner the hemorrhage came on suddenly with no premonitory symptoms, the fourth, sixth, twenty-fifth and thirty-third days after the nephrotomy for removal of stones. All bleeding vessels had been ligated, the kidney sutured and *tamponed firmly* from without and the hemorrhage occurred when all was supposed to be progressing ideally. The hemorrhage was arrested in one of the cases under expectant measures but returned again eight days later and more severe. An important aid in diagnosing was the discovery with the cystoscope of the blood spurting from one ureter mouth.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 13, XXXII, No. 84, pp. 883-890

92 Marked Benefit from Roentotherapy in Myelogenous Leukemia; Two Cases. A Austoni.

July 13, No. 85, pp. 891-906

93 Pathologic Urine. F. Bottazzi.
94 Case of Lymphosarcomatosis with Chylothorax. L. Zagari.

Policlinico, Rome

July, XVIII, Medical Section No. 7, pp. 285-332

95 *Percussion of the Spine in Differentiation of Compression of the Trachea. (Di un nuovo segno fisico di compressione tracheale ricavata dalla percussione delle vertebre.) G Stradiotti.
96 Pseudochylous Ascites. M. Barberio.

95. **Percussion of the Spine in Differentiation of Compression of the Trachea.**—Stradiotti calls attention to the difference in the findings on percussion of the vertebræ when the mouth and nostrils are open or closed. In a case described in detail certain modifications in the percussion findings were explained by discovery of a tumor in the anterior mediastinum compressing the trachea and causing resonance when the corresponding vertebræ were percussed. Experiments on the cadaver confirmed the importance of this physical sign of compression of the trachea.

Books Received

Books received are acknowledged in this colum[illegible] such acknowledgment must be regarded as a sufficient retu[illegible] for the courtesy of the sender. Selections will be made for revie[illegible] the interests of our readers and as space permits.

The American Illustrated Medical Dictionary. [illegible] New and Complete Dictionary of the Terms Used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Nursing, Veterinary Science, Biology, Medical Biography, Etc., With the Pronunciation, Derivation, and Definition. Including Much Collateral Information of an Encyclopedic Character. Together with New and Elaborate Tables of Arteries, Muscles, Nerves, Veins, etc.; of B[illegible] cocci, Micrococci Streptococci, Ptomains and [illegible] and Measures, Eponymic Tables of Disease [illegible] and Symptoms, Stains, Tests, Methods of Treatment, etc. By W. A. Newman Dorland, A.M., M.D., Member of Committee on Nomenclature and Classification of Diseases of the American Medical Association. Sixth Edition. Leather. Pp. 986, with illustrations. Philadelphia: W. B. Saunders Co., 1911.

Malaria: Its Prevention and Control. By Graham E. Henson, M.D., E. Van Hood, M.D., and E. W. Warren, M.D., Special Committee of the Florida Medical Association for the Control and Prevention of Malaria. State Board of Health of Florida, Jacksonville. Publication 84. Paper. Pp. 43, with 9 illustrations. June, 1911.

Nature Sketches in Temperate America. A Series of Sketches and a Popular Account of Insects, Birds, and Plants, Treated from Some Aspects of Their Evolution and Ecological Relations. By Joseph Lane Hancock, M.D., F.E.S. Cloth. Price, $2.75 net. Pp. 451, with 227 illustrations. Chicago: A. C. McClurg & Co., 1911.

Fourteenth Annual Report of the German Methodist Deaconess Home and Bethesda Hospital, Cincinnati. From January, 1909, to January, 1910. Paper. Pp. 72, with illustrations.

After Sunrise, or Second Attempts at Poetry. By Philip Matthew Wagner, Author of "At the Dawn," etc. Cloth. Price, $1. Pp. 155. P. M. Wagner, Canal Dover, Ohio, 1909.

Hearings Before the Committee on Expenditures in the Department of Agriculture. Aug. 21, 1911. Paper. Pp. 841-914. Washington: Government Printing Office, 1911.

Forty-Fourth Annual Report of the Home for Incurables. Third Avenue and One Hundred and Eighty-First Street, New York. Paper. Pp. 70, with illustrations.

The Twenty-Eighth Annual Report of the Bishop Clarkson Memorial Hospital for Children, Omaha, May 1, 1911. Paper. Pp 45.

Annual Report of the Mt. Sinai Hospital for the Eighth Year, Jan. 1 to Dec. 31, 1909. 17 Staniford Street, Boston. Paper. Pp. 29.

Announcement of Scarlet Oaks Sanitarium, Lafayette Avenue, Clifton, Cincinnati. Paper. Pp. 34, with illustrations.

New Patents

New Patents of Interest to Physicians

990415	Individual thermometer holder. Eustace T. Baker, Spokane, Wash.
990525	Stretcher for fractures. Thomas A. Christy, Hot Springs, S Dak.
990325	Receptacle or case for thermometers and the like. Herbert J. Winn, Rochester, N. Y.
991261	Pharmaceutical preparation. Ferdinand von Arlt, Vienna, Austria-Hungary.
991130	Druggist's label cabinet. Henry W. Broemmelsiek, St. Louis.
991348	Prescription file. John D. Mulloy, Portland, Ore.
991015	Protector for hypodermic needles. Joseph Payne, Belmont, Mass.
991022	Pocket syringe. David W. Rees and H. E. Carmichael, Needles, Cal.
991104	Crutch. Samuel J. Trask, Utica, N. Y.
991767	Apparatus for producing ozone. Charles G. Armstrong, Orange, N. J.
991820	Device for preventing seasickness and also applicable to lifts on board ship. Henry Baumgartner, Bradford, England.
991825	Disinfectant holder or container. James R. C. Bogle, Urmston, England.
991831	Ankle support and protector. Henry J. Collis, Taunton, Mass.
991844	Therapeutic bottle. Louis F. Gillette, Concord, N. Y.
992013	Surgical appliance. Sackville G. Leyson, Syracuse, N. Y.
991560	Enzyme. Jokichi Takamine, New York.
991561	Amylolytic enzyme. Jokichi Takamine, New York.
991808	Pasteurizing apparatus. August Tiesse, Chicago.
992639	Disinfecting cabinet. William C. Burrichter, Panora, Iowa.
992348	Atomizer or volatilizer. George H. Goldsmith, Saylesville, and J. C. Rankine, Pawtucket, R. I.
992205	Tunnel and plate holder slide for x-ray picture. John R. Kelley, Cincinnati.
992671	Bed for invalids. Clarence R. Kester, Laton, Cal.
992254	Producing a medicinal composition. Hubert Rieck, Irvington, N. J.
992265	Preserving hydrogen peroxid solution. Max Schlaugk, Hanover, Germany.
992282	Dispensing device for soda water fountains. George W. Speyer, Philadelphia.
992302	Electric machine for therapeutic purposes. Reinhold H. Wappler, New York.